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# ONTARIO WEEDS

## Descriptions, Illustrations
## and
## Keys to their Identification

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## INTRODUCTION

### What is a Weed?

Weeds are ordinary plants which have some undesirable features. They may grow where people do not want them. They may disfigure lawns (Dandelion) and gardens (Redroot pigweed), interfere with crop production (Field bindweed), reduce crop yield (Wild mustard), reduce crop quality (Wild garlic), lower feed palatability (Wormseed mustard), reduce visibility along roadsides (Nodding thistle), poison livestock (Water-hemlock), or cause prolonged human discomfort by contact (Poison-ivy) or by their pollen (Common ragweed). On the other hand, many plants which are undesirable in one situation may have a valuable function in another: Quack grass is an excellent soil binder; Blueweed is a favorite bee pasture; many annuals rapidly cover bare soil and reduce erosion; some have valuable medicinal properties; and some are nutritious as well as edible.

### Why Identify Weeds?

Being able to recognize weeds and to know their names are important to many people for physical comfort as well as for economic benefit or aesthetic value. If you can recognize Poison-ivy, you can avoid contact with it. If you need information on how to control a weed the first step is to learn its name. After you know its name, you can enquire about or read up on its usual growth habits and its responses to herbicides. Familiarity with these features is often essential in order to work out the best method of controlling the weed in your particular situation. This book is intended for use by all people who are involved with weeds.

### About this Book

There are over 500 species of plants in Ontario which have been considered weedy in one way or another. About 270 of the most prevalent, widespread or important weeds have been described here. Of these, 195 are illustrated mostly by black and white line drawings but with some color photographs, showing general features and emphasizing certain distinctive characteristics. Word descriptions supplement the illustrations, often with letters and arrows focusing attention on important characteristics in the drawings. In an attempt to avoid technical terms for the benefit of the general public, the descriptions are in common everyday language. The period of flowering, distribution in Ontario, usual places of occurrence, and some of the main distinguishing characteristics are also given for each weed.

Some of the black and white illustrations are reprinted with modification from earlier editions of Publication 505, written by F. H. Montgomery, Professor Emeritus, University of Guelph. The rest were selected from drawings by B. Carrick, B. Dodge, B. Gordon, G. Spicer, Z. Zichmanis and the senior author. Color plates were selected from photographs by D. Hamilton, both authors, and from files of unsigned transparencies maintained in the Ontario Agricultural College.

### Identification Keys

An Identification Key is a step-wise elimination process for identifying plants. At each step is a pair of contrasting or opposite statements about plants. You read **both** statements and examine the plant you wish to identify. The characteristics of that plant should agree with one statement but not with the other. At the end of the agreeing statement are numbers which lead you to the next step, another pair of choices. Gradually you eliminate plants which have characteristics different from the one you are identifying. Eventually you reach a step at which the agreeing choice is followed by the name or names of one or more weeds. The final step is when you check the description and illustration of one of the named weeds and discover it is the plant you were keying. A main Key and short-cut Keys are included with instructions for their use.

These Keys have been designed to assist in identifying plants in various stages of growth. Many weeds can be keyed successfully while still in rosette stage (if they have one), and some in pre-flowering stage as well as in full flower. The Keys will usually work in spite of some simple mistakes often made by non-botanists (for example, some plants with compound leaves can also be keyed as if each leaflet were a separate leaf).

### Names of Weeds

Almost every weed has several names by which it is known in various parts of the country. Confusion exists because the same name can mean a different plant to different people. The Canada Weed Committee (part of the Canadian Agricultural Services Coordinating Committee) has attempted to minimize this confusion by selecting the most appropriate name for Canada-wide usage for each weed.

The English name used for each weed in this book is the one selected for it by the Canada Weed Committee. It is given in bold-face print at first mention, thereafter in ordinary print. This is followed by its botanical name in italics and the author of that botanical name. Then, in square brackets are the French name as selected by the Canada Weed Committee, other English names, and other botanical names.

An Index to all of the weed names is provided at the end of the book. It lists the selected English name, selected French name, other English names and botanical names for every weed included and gives page references.

## WEED CONTROL

The introduction of many new weed-killing chemicals (herbicides) has made it easier to reduce losses due to weeds. However, in most cases, complete eradication cannot be expected from one application of a particular herbicide. The use of clean seed, proper cultural practices, an approved crop rotation, and other techniques to reduce weed growth and weed-seed spread must be coupled with the correct herbicide program.

Weed control measures are closely related to the life habits of weeds. These life habits may be classified as follows:

**Annuals** — Weeds which germinate, bloom, produce seeds, and die in one growing season. Examples: Common ragweed, Wild mustard.

**Winter Annuals** — Weeds which germinate and produce a leafy rosette in the fall and then bloom, seed, and die the following summer. Examples: Shepherd's-purse, Stinkweed.

**Biennials** — Weeds which germinate and produce a leafy rosette during their first growing season, and then flower, complete their life cycle and die during the next. Examples: Wild carrot, Burdock.

**Perennials (Herbaceous)** — Weeds which live a number of years, developing each year from underground stems, or roots, or crowns, and usually flowering each year but dying back to the ground each winter. Examples: Perennial sow-thistle, Quack grass.

**Perennials (Woody)** — Weedy trees, shrubs and woody vines which live for many years, producing new growth each year from their aboveground stems, branches and twigs, and in some cases from underground stems, or roots, or crowns. Examples: European buckthorn, Climbing nightshade.

Some weeds may exhibit two or more life habits. Examples: Stinkweed may be either annual or winter annual; Wild carrot is usually biennial but some plants are annual and others are short-lived perennials.

Control measures for annual, winter-annual, and biennial weeds are largely designed to destroy the weed plants before they offer too much competition to the crop, or before they go to seed. Tillage, spraying or mowing are the main methods used. Eradication is usually difficult because seeds of many weeds may lie buried for years in the soil without germinating. Also, control is made difficult because the germination of many weed seeds coincides with the germination and early seedling growth of the crops in which they are troublesome.

Perennial weeds are even more difficult to eradicate because it is not only necessary to prevent their spread by seeds, but also their underground stem and root systems must be destroyed. Certain herbicides (such as 2,4-D) are excellent for the control of some perennials as the chemical moves from the treated leaves down through the root system, killing the whole plant. Unfortunately, some of the most persistent perennial weeds do not allow herbicides to move into the roots. In such cases persistent cultivation (fallowing) is the best method of control. The weed being controlled should be allowed to grow a few inches before each cultivation. This will use up more of the food reserves in the underground parts and result in earlier death of the whole plant.

In general, weeds are most susceptible to herbicides when they are young and growing rapidly. However, the susceptibility of the crop in which the weeds are growing must also be considered. Complete recommendations for the control of weeds in various crops are given in Ontario Ministry of Agriculture and Food Publication 75, *Guide to Chemical Weed Control,* also available in the French language as *Guide Pour la Repression Chimique des Mauvaises Herbes*. This publication should also be consulted for information on sprayer calibration, amount of chemical to use, and safety precautions to be observed. Because of continuing research, new herbicides are being developed, and new information is constantly being discovered about the most effective rates, times and methods of application for different herbicides on different kinds of weeds in different crops (or non-crop areas) and in different regions. Publication 75 is revised annually to incorporate this new information. It is important to consult the current edition before using any herbicide.

Correct identification of weeds is essential for satisfactory control. The science of Weed Control is continually demonstrating that even closely related weeds may differ widely in response to particular herbicides, or to methods or times of application. This need for precision in identification of weeds was the prime reason for expanding this edition of *Ontario Weeds* to include more weeds with more detailed descriptions, revised illustrations and the addition of color plates.

## NOXIOUS WEEDS — THE WEED CONTROL ACT (1974)

In Ontario, 23 weeds are classed as noxious under the Weed Control Act. This Act states that "Every person in possession of land shall destroy all noxious weeds thereon."

Weeds are classed as noxious for several reasons. Some are noxious because they can cause injury to people (Poison-ivy causes severe rash; pollen from the Ragweeds causes hay fever); some because they increase crop diseases (Common barberry is the alternate host for organisms which cause stem rust in oats, barley, rye and spring wheat; European buckthorn is the alternate host for organisms causing leaf rust and crown rust of oats); others because they reduce crop yield and either are very difficult to control (Leafy spurge, Tuberous vetchling), or have seeds that blow on the wind (Canada thistle, Sow-thistle). Copies of the Weed Control Act may be obtained from the Soils and Crops Branch, Ontario Ministry of Agriculture and Food, Toronto, Ontario.

The weeds named below are classified as noxious in Ontario under the Weed Control Act:

| COMMON NAME | SCIENTIFIC NAME |
|---|---|
| Bull thistle | *Cirsium vulgare* (Savi) Tenore |
| Canada thistle | *Cirsium arvense* (L.) Scop. |
| Chicory | *Cichorium intybus* L. |
| Common barberry | *Berberis vulgaris* L. |
| European buckthorn | *Rhamnus cathartica* L. |
| Dodder | *Cuscuta* spp. |
| Field bindweed | *Convolvulus arvensis* L. |
| Goat's-beard | *Tragopogon* spp. |
| Johnson grass | *Sorghum halepense* (L.) Pers. |
| Milkweed | *Asclepias* spp. |
| Nodding thistle | *Carduus* spp. |
| Poison-ivy | *Rhus radicans* L. |
| Ragweed | *Ambrosia* spp. |
| Russian knapweed | *Centaurea repens* L. |
| Russian thistle | *Salsola pestifer* A. Nels., |
| Scotch thistle | *Onopordum acanthium* L. |
| Sow-thistle, perennial, annual | *Sonchus* spp. |
| Cypress spurge | *Euphorbia cyparissias* L. |
| Leafy spurge | *Euphorbia esula* L. |
| Tuberous vetchling | *Lathyrus tuberosus* L. |
| Wild carrot | *Daucus carota* L. |
| Wild garlic | *Allium vineale* L. |
| Yellow rocket | *Barbarea* spp. |

## ASSISTANCE

If the identity of a weed cannot be found by the use of the following Identification Key, descriptions and pictures, it should be taken or sent to your local Agricultural Representative or Soils and Crops Branch Specialist. They can help to identify it and may also be able to assist in choosing the most satisfactory control method. But, in order to identify your weed, you must provide the specialist with a reasonably intact plant. Accurate identification often requires examination of all parts of a plant — its stems with branches, leaves, flowers, seedpods, and some of the underground system. You must try to include as many of these parts as possible in the specimen that you submit. County and District offices are listed in Publication 75 described in a preceding section.

## IDENTIFYING THE WEEDS

### How To Use Identification Keys

The first step is to read the first pair of contrasting statements. They are numbered "1a" and "1b". Then look closely at the plant you wish to identify. Its characteristics should agree with one statement but not with the other. At the end of the agreeing statement are two numbers with letters. Go down the Key to the pair of statements having those numbers and letters. For example, if your plant has a reddish-green stem and green leaves, it agrees with Statement 1b. Because Statement 1b is followed by the numbers and letters, "3a or 3b," you move down the Key to the pair of statements numbered "3a" and "3b". This is the beginning of the second step and you repeat the same process as in the first step. Read both statements; reexamine your plant (again the characteristics of your plant should match only one of the two statements); choose the matching statement; note the two indicator numbers with letters and move on to the next step. Continue this process until finally an agreeing statement is followed not by numbers and letters but by the name or names of one or more weeds and page numbers. Turn to those pages for descriptions and illustrations of the named weeds.

### Problems in Keying

The reader should not be discouraged if the Key does not work the first time. There are so many choices to be made, so many opportunities for error or misinterpretation. A simple error at any step can put you on the wrong track.

If none of the descriptions and illustrations match your plant, start again at the beginning of the Key (at 1a or 1b). Go through the Key as before but carefully rethink each choice in case an error was made. It is often necessary to start over four or five times. However, if you still cannot reach a description which matches it, your plant may not be included among the 270 described or mentioned in this book. Assistance must then be sought elsewhere.

### How To Use the Descriptions and Illustrations

The descriptions of weeds are written in non-technical language as far as possible. However, some terms could not be avoided. Most readers will know that a stem has *nodes* or joints and the leaves are attached to it only at these nodes; the *calyx* is the ring of *sepals* (usually but not always green in color) making up the outer or lower part of a flower; the *corolla* is the ring of *petals* (usually a bright color) next to the sepals; the *stamens* are next to the petals and have *anthers* which produce *pollen;* and the *pistil* or *pistils* are in the center of the flower, each having a slender tip *(style)* with a sticky part *(stigma)* which receives the pollen and a larger, lower part *(ovary)* which, after fertilization, develops into the seedpod. Where other terms have been used, a brief definition is usually included in brackets right after them.

The descriptions and illustrations are a team. The words tell about the plant while the drawings and photographs show what the plant looks like. In this book the two are tied together with many cross-references. In the descriptions, most cross-references are *small letters between brackets* and they refer to lettered arrows in the *Figures*. When you come to each bracketed small letter while reading a description, find the arrow with that letter in the drawing and pay special attention to it. The arrows point to important characteristics which help to distinguish that plant from all others. *Capital letters* refer to individual drawings where there are two or more in one Figure. *Plates* are the color photographs.

### Shortcuts

Some weeds can be identified by entering the Key at some distance past the beginning. You can save time by not going through all the earlier steps which bring you to that point anyway. However, if the shortcut fails, go back to the beginning and start at "1a" or "1b".

| **If your plant has:** | **Enter the Key at:** |
|---|---|
| Leaves alternate (single or 1 per node) | 56a or 56b |
| Leaves opposite (in pairs, or 2 per node) | 35a or 35b |
| Some leaves whorled (3 or more per node) | 8a or 8b |
| Leaves in rosettes (spreading like spokes of a wheel at ground surface) | 13a or 13b |
| White or yellowish milky juice | 10a or 10b; 29a; 37a; 40a; 57a |
| Underground parts with very small nutlike tubers, or fleshy potato-like tubers, or fleshy Dahlia-like or cigar-shaped tubers | 98a or 98b |

Some groups of weeds have certain obvious characteristics which are seldom found in other plants. The presence of these characteristics is strong indication of what the weed may be. With a little practice you can become accustomed to looking for these features. Several are listed on the next page.

| If your plant has: | Look at the plants illustrated in: |
|---|---|
| No green color | Plates 1, 2; Figure 1 |
| Green stems without any leaves | Figure 1 |
| Square stems | Figures 42, 98, 113–118, 136, 143, 144 |
| Triangular stems; plant grasslike | Figure 21 |
| Tendrils (slender curling or twisting structures) | Figures 83, 84, 138, Plate 24 |
| Vine-like or twining stems | Figures 28, 90, 109, 110, 120, Plate 30 |
| Very fleshy stems and leaves | Figures 41, 73 |
| Leaves with ocrea (membranous sheath) surrounding stem just above each node where leaf joins stem | Figures 23–29 |
| Leaves with base of leafstalk flattened and partly or wholly circling the stem | Figures 22, 54, 55, 100–105 |
| Leaf tips or tips and edges with sharp spines | Figures 35, 120, 164–168, 175 |
| Leaf surfaces with sharp prickles or spines | Figures 122, 137, 167, 178 |
| Leaves with a single row of stiff prickles along underside of midrib; plant not prickly elsewhere | Figure 178 |
| Stems with sharp spines or thorns | Figures 56, 79, 85, 91, 122, 137, 164–168 |
| Stems prickly due to harsh hair or spiny sepal tips | Figures 14, 111, 116, 118 |
| Spiny or clinging burs | Figures 17, 19, 77, 123, 137, 144, 147, 163 |
| Flowers with 4 petals arranged in a cross | Figures 58–72 |
| Flowers in a flower head (see page 153) | Figures 141–184 |
| Flowers with stamens in a central column (Figure 92C) | Figures 92–95 |

## IDENTIFICATION KEY

1a. Stems of plant orange, yellow, brown or gray; plant apparently without green color . . . . . 2a or 2b

1b. Stems green, or grayish-green, or reddish-green; plant obviously with some green color . . . . . 3a or 3b

2a. Stems threadlike, twining around other normal green plants, flowers white . . . . . Dodder p 122

2b. Stems as thick as lead pencils or thicker, not twining; without true flowers but with spore-producing cone at top of stem . . . . . Field horsetail p 13

3a. Plants apparently without leaves, consisting only of rather firm, green stems, usually with whorls (3 or more per node, like spokes of a wheel) of thinner green branches from some of the nodes (joints) of stem; never spiny . . . . . Field horsetail p 13

3b. Plants producing more or less normal leaves, or its leaves with flat or thin portions, or with finely divided portions; may or may not be spiny . . . . . 4a or 4b

4a. Underground parts with small nutlike tubers, or larger fleshy potato-like tubers, or fleshy Dahlia-like or cigar-shaped tubers; vertical fleshy, carrot-like taproot usually not present . . . . . 98a or 98b

4b. Underground parts without tuberous thickenings; vertical fleshy carrot-like taproot may or may not be present; or these features unknown due to lack of adequate material . . . . . 5a or 5b

5a. Plant with distinctly leafy stem; rosette leaves may or may not be present at base (**Caution:** Poison-ivy included here, see Figure 90, Plate 33) . . . . . 6a or 6b

5b. Plant without a leafy stem; leaves few or many in a **rosette** (spreading like spokes of a wheel at the ground surface, as in Figures 134, 181) . . . . . 13a or 13b

6a. Stem leaves alternate (arranged singly, only 1 per node as in Figures 17, 27, 58) or opposite (arranged in pairs, 2 per node as in Figures 45, 53, 118) . . . . . 7a or 7b

6b. Stem leaves whorled (arranged in groups of 3 or more leaves at each node, like spokes of a wheel Figures 42, 108, 136) with occasionally only 2 or just 1 leaf per node in the upper part of the plant near the flowers . . . . . 8a or 8b

7a. Leaves strictly **opposite** (2 per node) throughout the plant, or mostly opposite except for some alternate (1 per node) smaller leaves or bracts at the top near the flowers (as in Figure 128) . . . . . 35a or 35b

7b Leaves **alternate** (1 per node) throughout the plant, sometimes so close together that they appear to be opposite (2 per node, as in Figures 88, 126) . . . . . 56a or 56b

8a. Leaves much lobed, divided or compound; only 1 whorl of 3 fernlike leaves at tip of a bare stem . . . . . Eastern bracken p 14

8b. Leaves not lobed, divided or compound; few to many whorls of leaves on each stem . . . . . 9a or 9b

9a. Milky juice present in stems and leaves . . . . . 10a or 10b

9b. Milky juice not present in stems and leaves . . . . . 11a or 11b

10a. Leaves whorled (3 or more per node) only near top of stem, but just opposite (2 per node) or alternate (1 per node) in lower portion of stem . . . . . Compare: spurges pp 95–98, milkweeds pp 119–120

10b. Leaves whorled at every node . . . . . Whorled milkweed p 120

11a. Stems erect with few branches; leaves 3–10 cm (1½ – 4 in.) long with broad, nearly heart-shaped bases . . . . . Purple loosestrife p 108

11b. Stems prostrate, or weak or, if erect, then with very narrow, slender leaves . . . . . 12a or 12b

12a. Stems square or 4-angled, prickly, hairy or smooth; leaves in whorls of 4, 6 or 8 per node, narrow, linear to narrowly oblong . . . . . Compare: Carpetweed p 55, Smooth bedstraw p 148, Cleavers p 148

12b. Stems round, smooth or slightly sticky-hairy; leaves in whorls of up to 16 per node, narrowly linear or long-pointed . . . . . Compare: Russian thistle p 48, Carpetweed p 55, Corn spurry p 56

13a. Leaves grasslike or very narrow for their lengths, never divided or compound; their length usually 8 or more times greater than their width; the main veins parallel, or the veins not obvious ..... 14a or 14b

13b. Leaves not grasslike but variously shaped; their length usually much less than 8 times their width; the main veins branching or net-veined ..... 19a or 19b

14a. Leaves, stem and other parts of the plant with a strong onion-like odor and taste ..... Wild garlic p 35

14b. Leaves, stem and other parts of the plant not smelling or tasting like onion ..... 15a or 15b

15a. Leaves coarsely ribbed or somewhat folded lengthwise; the main veins nearly parallel and very prominent; flowering stem bare of leaves ..... Narrow-leaved plantain p 147

15b. Leaves not coarsely ribbed lengthwise; flowering stem when present usually with several leaves similar to those of the rosette ..... 16a or 16b

16a. Leaves, stem and other parts with milky, white, sticky juice ..... goat's-beards pp 189–190

16b. Leaves, stem, and other parts without milky juice ..... 17a or 17b

17a. Leaves 3-ranked on a triangular stem (Figure 21) (produced in line with the 3 angles), often somewhat yellowish-green; thin underground rhizomes (rootlike stems) producing small lumps or nuts (about 0.5 – 1 cm, ⅕ – ⅖ in. diameter) which are reproductive tubers ..... Yellow nut sedge p 34

17b. Leaves 2-ranked (produced on 2 sides) on a round or flattened stem, usually green or slightly bluish-green; rhizomes, if present, not producing nuts or tubers ..... 18a or 18b

18a. Leaves needlelike, round in cross-section, tipped with a sharp point ..... Russian thistle p 48

18b. Leaves grasslike, flat or folded lengthwise, usually not spiny-tipped ..... Grass Family pp 15–33

19a. Leaves densely white-woolly (like a felt insole) on 1 or both surfaces ..... 20a or 20b

19b. Leaves hairless or with some hair but not densely white-woolly on either surface ..... 23a or 23b

20a. Margins of leaves usually neither lobed nor toothed or may have shallow teeth but no spines. Compare: Common mullein p 136, burdocks pp 172–173

20b. Margins of leaves more or less deeply lobed, toothed or divided; spines may or may not be present ..... 21a or 21b

21a. Leaves almost fern-like with very deep and fine lobes or divisions but without spines or prickles ..... Compare: Silverweed p 87, Yarrow p 161

21b. Leaves usually lobed or divided but not fern-like with or without spines or prickles ..... 22a or 22b

22a. Leaves mostly with numerous spines or prickles ..... Compare: Nodding thistle p 174, Plumeless thistle p 175, Scotch thistle p 178, Spotted knapweed p 178

22b. Leaves without spines or prickles ..... Compare: Silvery cinquefoil p 87, Silverweed p 87, Absinth p 165

23a. Leaves divided into numerous, very fine segments, almost fern-like ..... Compare: Eastern bracken p 14, buttercups pp 66–67, Flixweed p 78, tansy mustards p 78, Wild carrot p 110, Yarrow p 161, Tansy p 163, Biennial wormwood p 165, Pineapple weed p 160, Stinking mayweed p 160, chamomiles pp 160–161

23b. Leaves either not divided or divided into lobes of various widths but not into very fine segments ..... 24a or 24b

24a. Margins of leaves smooth, neither wavy, toothed nor divided ..... 25a or 25b

24b. Margins of leaves irregular, or wavy, or toothed, or lobed or completely divided into compound leaves ..... 26a or 26b

25a. Leaf surface with few to many harsh prickly hairs ..... Blueweed p 124

25b. Leaf surface with soft hair or without hair ..... Compare: docks pp 37–38, White cockle p 61, Night-flowering catchfly p 62, Biennial campion p 63, Tall wormseed mustard p 75, evening primroses p 109, hawkweeds pp 180–181

26a. Length of whole leaf (including all segments or parts of a lobed or compound leaf) usually much more than 2 times the width of the whole leaf (Figures 24, 180) ..... 27a or 27b

26b. Length of whole leaf usually about equal to its width or rarely more than 2 times its width (Figures 54, 92, 102) ..... 33a or 33b

27a. Leaves with wavy margins or very shallow teeth ..... 28a or 28b

27b. Leaves lobed or divided with small or large, shallow or deep lobes ..... 29a or 29b

28a. Leaves generally larger, often 15 cm (6 in.) or longer, and often numerous in a large rosette ..... Compare: Curled dock p 36, evening primroses p 109, Hound's-tongue p 125, Moth mullein p 137, Teasel p 149, Elecampane p 172, Tall blue lettuce p 184, Canada lettuce p 184

28b. Leaves generally smaller, seldom more than 15 cm (6 in.) long, few or many in small- to medium-sized rosettes ..... Compare: Tall wormseed mustard p 75, Stinkweed p 80, Shepherd's-purse p 82, Hoary alyssum p 82, False flaxes p 83, Black-eyed Susan p 154, English daisy p 170, Prickly lettuce p 184, Dandelion p 186

29a. White or yellowish milky juice present in leaves, stems and other parts ..... Compare: Greater celandine p 69, hawkweeds pp 180–181, sow-thistles pp 182–183, lettuces p 184, Chicory p 186, Dandelion p 186, Fall hawkbit p 188

29b. White or yellowish milky juice not present in any part of plant ..... 30a or 30b

30a. Leaves spiny ..... Compare: Nodding thistle p 174, Plumeless thistle p 175, Canada thistle p 176, Bull thistle p 177, Globe thistle p 178, Milk thistle p 178

30b. Leaves not spiny ..... 31a or 31b

31a. Leaves palmately lobed (clefts or spaces between lobes or leaflets pointing towards petiole or leaf-stalk, as Figures 54, 103, 116) ..... Compare: Cinquefoils pp 85–87, Goutweed p 111, Cow-parsnip p 115, Water-hemlocks pp 115–116, Angelica p 115, Poison hemlock p 115, Motherwort p 130, Tall coneflower p 154

31b. Leaves pinnately lobed (clefts or spaces between lobes or leaflets pointing towards midrib of leaf, as in Figures 64, 78, 102) ..... 32a or 32b

32a. Leaves generally larger, often 15 cm (6 in.) or longer . . . . . Compare: wall-rockets p 72, Tumble mustard p 76, Hedge mustard p 77, Tall hedge mustard p 77, Yellow avens p 87, Caraway p 110, Water parsnip p 112, Wild parsnip p 117, Tall beggarticks p 156

32b. Leaves generally smaller, seldom more than 15 cm (6 in.) long . . . . . Compare: Dog mustard p 71, Yellow rocket p 73, Flixweed p 78, peppergrasses p 79, Shepherd's-purse p 82, Small burnet p 89, Field violet p 107, Ox-eye daisy p 162, Spotted knapweed p 178

33a. Leaves lobed or divided . . . . . 34a or 34b

33b. Leaves not lobed or divided . . . . . English daisy p 170

34a. Leaves palmately lobed or divided (clefts or spaces between lobes or leaflets pointing towards petiole or leafstalk, as Figures 54, 75) . . . . . Compare: Eastern bracken p 14, Buttercups pp 66–67, cinquefoils pp 85–87, Low hop clover p 90, Black medick p 90, White clover p 91, mallows pp 102–103, Flower-of-an-hour p 105, Goutweed p 111, Henbit p 129, Motherwort p 130, Corn speedwell p 142, Absinth p 165, fleabanes pp 167–169

34b. Leaves pinnately lobed or divided (clefts or spaces pointing towards midrib, as Figures 65, 84) . . . . . Compare: Greater celandine p 66, Mustard Family (Wild mustard, Black mustard, Wild radish, Dog mustard, wall rockets, Yellow rocket, Tumble mustard, Hedge mustard, Tall hedge mustard, Flixweed, tansy mustards, Shepherd's-purse) pp 70-83, Yellow avens p 87, Small burnet p 89, Bird's-foot trefoil p 91, Vetches pp 92–93, St. John's-wort p 106, Flower-of-an-hour p 105, Field violet p 107, Goutweed p 111 Water-parsnip p 112, water-hemlocks pp 115–116, wild parsnip p 117, Tall beggarticks p 156, Common ragweed p 157, Biennial wormwood p 165, fleabanes pp 167-169, sow-thistles pp 182–183

35a. (From 7a: leaves mostly opposite, 2 per node) Plants woody, perennial, shrubs or small trees . . . . . 36a or 36b

35b. (From 7a: leaves mostly opposite, 2 per node) Plants not woody; herbaceous annuals, or biennials, or perennials with stems which die back to the ground each winter . . . . . 40a or 40b

36a. CAUTION – Leaves compound with 3 leaflets on each long stalk (see Figure 90), usually low-growing (20 – 90 cm, 8 – 36 in. high), occasionally a vine climbing 3 m (10 ft) or higher . . . . . Poison-ivy pp 99–100

36b. Leaves not compound, or compound with 5 or more leaflets, low- or tall-growing . . . . . 37a or 37b

37a. Leaves and stems with milky juice . . . . . Compare: Spreading dogbane p 118, Indian hemp p 118, Dogstrangling vine p 120

37b. Leaves and stems without milky juice . . . . . 38a or 38b

38a. Stems and branches very prickly with numerous, short, triangular-based prickles, these prickles often in pairs . . . . . Prickly-ash p 94

38b. Stems and branches without prickles but tips of branches may end in thorns . . . . . 39a or 39b

39a. Leaves narrow, linear-oblong, with transparent dots (Plate 26); flowers bright yellow in terminal, branched bunches; seed in small, dry seedpods; plant usually less than 50 cm (2 ft) high . . . . . St. John's-wort p 106

39b. Leaves ovate to broadly elliptic; flowers greenish-yellow in many small clusters along the branches; seed in juicy blue-black berries . . . . . buckthorns p 101

40a. Plants with milky juice . . . . . 41a or 41b

40b. Plants without milky juice . . . . . 43a or 43b

41a. Flowers or general inflorescence green, yellowish-green or somewhat reddish-green; leaves small, rarely more than 2.5 cm (1 in.) long . . . . . spurges pp 95–98

41b. Flowers white, pink, purplish or maroon; leaves larger, usually more than 3 cm (1⅕ in.) long . . . . . 42a or 42b

42a. Flowers small, bell-shaped, white or pinkish, in branching clusters . . . . . Dogbane Family p 118

42b. Flowers not bell-shaped; flowers purplish-green, whitish-green or maroon to deep purple, in umbel-like clusters . . . . . Milkweed Family pp 119–121

43a. Flowers in umbels (flower stalks clustered like spokes of a wheel) at tips of stems and branches . . . . . Carrot or Parsley Family pp 110–117

43b. Flowers not in umbels . . . . . 44a or 44b

44a. Leaves finely dissected, almost lacy . . . . . Common ragweed p 157

44b. Leaves not finely dissected . . . . . 45a or 45b

45a. Leaves and stems prickly; flowers in dense, spiny, egg-shaped clusters . . . . . Teasel p 149

45b. Leaves and stems not prickly but may have prickles around the seed clusters; flowers not in dense egg-shaped clusters . . . . . 46a or 46b

46a. Leaves large, usually 7.5 cm (3 in.) wide or wider, oval to rounded in outline but usually 3- to 5-lobed . . . . . 47a or 47b

46b. Leaves or leaflets usually less than 5 cm (2 in.) wide . . . . . 48a or 48b

47a. Bases of leaves somewhat angular heart-shaped, with edges of lowermost main branching veins exposed in a broad V or M (Figure 146b); seed in burs covered with hooked spines . . . . . Cocklebur p 159

47b. Bases of leaves more or less rounded or pointed; all branching veins inside leaf blade; seeds angular with a few short erect spines around top end . . . . . Giant ragweed p 159

48a. Flowers in small greenish clusters, the clusters somewhat granular in appearance . . . . . 49a or 49b

48b. Flowers not in small, greenish, granular-appearing clusters; variously colored . . . . . 50a or 50b

49a. Only lowermost 2 or 4 leaves opposite, the rest alternate; each seed in a thin, rounded hull without wings . . . . . Lamb's-quarters p 44

49b. Most leaves opposite; each seed enclosed between 2 flat bracts . . . . . atriplexes p 47

50a. Flowers in "flower heads" (see page 153), bright yellow, yellow-green, or yellow and white . . . . . 51a or 51b

50b. Flowers arranged individually (single flowers with not more than 5 petals and either on long or short stalks or in leaf axils) or flowers grouped in loose or tight clusters along stems and branches but not in flower heads, variously colored including yellow ..... 52a or 52b

51a. Flower heads small, less than 1 cm (⅖ in.) across, yellowish-green usually with 5, tiny, white ray florets (Figures 140 A,B,C,E, 143b); seeds smooth, not barbed ..... galinsogas p 155

51b. Flower heads larger, more than 2 cm (⅘ in.) across, yellowish-green, some with bright yellow ray florets (Figures 140 A,B,C,E, 144a); seeds with 2 or 4 barbed awns ..... beggarticks p 156

52a. Flowers bright yellow or orange-yellow ..... St. John's-wort p 106

52b. Flowers white, pink, mauve, blue or purple ..... 53a or 53b

53a. Flowers with petals united forming a tubular corolla with 2 lips at the end, the upper lip 2-lobed, the lower lip 3-lobed (Plate 35); plants mostly with a minty or mint-like odor ..... Mint Family pp 126–130

53b. Flowers with petals separate, or if united not forming a 2-lipped tube; plants without a mint-like odor ..... 54a or 54b

54a. Flowers purple or red purple in small dense clusters in axils of small, mostly alternate leaves, forming many-flowered spikes at tops of tall stems ..... Purple loosestrife p 108

54b. Flowers mostly white, pink, mauve or blue; if purple then borne singly on long stalks from normal, opposite upper leaves ..... 55a or 55b

55a. Leaves without teeth, opposite (2 per node) on stems and in the inflorescence, flowers with 5 or 10 petals or petal lobes, and stamens as many as or usually twice as many as the petals ..... Pink Family pp 56–65

55b. Leaves with shallow teeth or almost without teeth, opposite on stems but alternate (1 per node) in inflorescence; flowers with 4 petal lobes and only 2 stamens ..... speedwells pp 140–145

56a. (From 7b: leaves alternate, 1 per node) Leaves very narrow (length 5 or more times their width), straight- or parallel-veined (grasslike) or apparently so ..... 57a or 57b

56b. (From 7b: leaves alternate, 1 per node) Leaves narrow or broad, net-veined ..... 63a or 63b

57a. Plants with white milky juice ..... 58a or 58b

57b. Plants without milky juice ..... 59a or 59b

58a. Leaves usually longer than 10 cm (4 in.) plant somewhat grasslike before flowering; flowers in large yellow or purple flower heads (see page 153); seeds in a large, spherical, fluffy ball ..... goat's-beards, Salsify pp 189–190

58b. Leaves usually less than 7.5 cm (3 in.) long; plant not grasslike; flowers in branching clusters, green, yellowish-green or reddish-green; seeds in tiny 3-seeded pods ..... Spurge Family pp 95–98

59a. Plants not grasslike, with erect firm stems and numerous narrow, short leaves; flowers yellow and orange or bluish-white, snapdragon-like, in spikes, or single from leaf axils ..... toadflaxes p 138

59b. Plants grasslike or somewhat so; flowers greenish or apparently not produced, or white to pink in a dense ball at the top of the stem ..... 60a or 60b

60a. Plant with a strong odor of onion; texture soft and fleshy; flowers white or bluish, in a dense ball at tip of stem ..... Wild garlic p 35

60b. Plant without odor of onion; texture firm, not fleshy; flowers greenish or apparently not produced ..... 61a or 61b

61a. Leaves spiny-tipped, grasslike in seedling stages only ..... Russian thistle p 48

61b. Leaves not spiny-tipped, all stages grasslike ..... 62a or 62b

62a. Stems hollow, round; leaves 2-ranked ..... Grass Family pp 15–33

62b. Stems solid, triangular; leaves 3-ranked ..... Yellow nut sedge p 34

63a. Plants woody at base, low to tall shrubs, sometimes viny, or low trees ..... 64a or 64b

63b. Plants not woody; stems herbaceous (soft or firm, more or less green); aboveground parts annual but roots may be perennial; some may be vine-like ..... 68a or 68b

64a. Leaves in 3's (actually, leaf is compound with 3 leaflets), the terminal leaflet stalked; flowers small, greenish, in branching clusters below the leaves; berries yellowish-green or grayish and hanging on all winter ..... Poison-ivy p 99

64b. Leaves not in 3's but simple, or if compound not with 3 leaflets ..... 65a or 65b

65a. Stems with pairs of short, stout, narrowly triangular spines (Figure 85a) at each node; leaves compound with 5 to 11 leaflets; flowers opening early in spring, before plants leaf out ..... Prickly-ash p 94

65b. Stems with 1 to 3 slender spines (Figure 56a) at each node, or long stout thorns (Figures 79a, 91a) or without spines or thorns; leaves not compound; flowers opening with or after plants leaf out ..... 66a or 66b

66a. Flowers bright yellow, in drooping racemes; sepals 6; petals 6; fruit red and berry-like ..... Common barberry p 68

66b. Flowers white, pinkish or greenish, not in racemes; sepals and petals in 4's or 5's ..... 67a or 67b

67a. Sepals 4 or 5; petals 4 or 5; flowers greenish and in stalkless axillary clusters along the stems and branches; fruit black, juicy, bitter; twigs may terminate in a thorn; no thorns along sides of twigs ..... buckthorns p 101

67b. Sepals 5; petals 5; flowers showy, white or pinkish in stalked clusters usually towards ends of branches; fruit red or purplish, rather apple-like and with hard seeds; stems and twigs usually with long stout thorns along sides but not at tip ..... Hawthorn p 89

68a. Plant with 3-branched tendrils (Figure 138B) opposite each leaf, a high-climbing herbaceous vine with broad, lobed leaves, and long clusters of greenish-white flowers ..... Wild cucumber p 150

68b. Plant without tendrils, or with tendrils at ends of compound leaves which are not 5-lobed ..... 69a or 69b

69a. Flowers in "flower heads" (see page 153) ..... Composite Family pp 153–190

69b. Flowers borne singly, or in spikes or clusters but not in "flower heads" ..... 70a or 70b

70a. Flowers individually small and inconspicuous, green, white, pinkish or reddish; true petals absent; sepals usually green and bract-like, or white or pinkish and petal-like . . . . . 71a or 71b

70b. Flowers large or small, usually showy; white or colored petals present . . . . . 76a or 76b

71a. Plants with a distinct ocrea (membranous sheath, Figure 27a) at each node (joint) of the stem and branches . . . . . Buckwheat or Smartweed pp 36–43

71b. Plants without an ocrea at each node . . . . . 72a or 72b

72a. Flowers in an open, umbel-like inflorescence; plants with milky juice; bracts under the flowers often petal-like and yellowish . . . . . Spurge Family pp 95–98

72b. Flowers in small, dense, stalkless clusters or in dense spikes . . . . . 73a or 73b

73a. Flowers whitish to a pinkish in elongated spikes, without bracts, producing a ring-shaped juicy berry, upper part of plant with reddish juice . . . . . Pokeweed p 53

73b. Flowers not in elongated spikes, or if in spikes then with dense spiny bracts; fruit dry, not juicy; plants with clear watery juice . . . . . 74a or 74b

74a. Seed-producing clusters or spikes having small, dense, stiff, papery, spiny-pointed bracts; sepals of each tiny flower bractlike, papery, brownish or greenish but not leaflike; plants not mealy . . . . . 75a or 75b

74b. Seed-producing clusters without spiny-pointed bracts; calyx small, greenish and leaflike in texture; some plants with mealy or scurfy surface . . . . Goosefoot Family pp 44–48

75a. Leaves slender, needlelike or wedge-shaped, sharp-pointed . . . . . Russian thistle p 48

75b. Leaves more or less oval, flat . . . . . Amaranth Family pp 49–52

76a. Sepals 2, sometimes dropping off before the flowers open . . . . . 77a or 77b

76b. Sepals 4 or more, remaining during the life of the flower . . . . . 78a or 78b

77a. Petals 4, large and yellow; flowers in few-flowered umbels; seedpods long and linear; plants erect; juice yellow-orange . . . . . Greater celandine p 69

77b. Petals 5, small and yellow; flowers in axils of leaves; seedpods nearly spherical; plants fleshy and prostrate; juice clear, watery . . . . . Purslane p 54

78a. Sepals 4; petals 4 . . . . . 79a or 79b

78b. Sepals 5; petals most frequently 5 but occasionally more, sometimes appearing as if 4 because 2 petals are united . . . . . 80a or 80b

79a. Flowers in bare (leafless) racemes, not in axils of smaller upper leaves (except Dog mustard); stamens 2, 4 or 6, if 4 or 6 then 2 are shorter than the others; sepals, petals and stamens attached below ovary; seedpod developing from inside of flower . . . . . Mustard Family pp 70–83

79b. Flowers in axils of smaller upper leaves and forming a spike; stamens 8 of equal size and length; sepals, petals and stamens on top of ovary; seedpod developing below flower . . . . . evening primroses p 109

80a. Petals separate from one another, or only 2 united . . . . . 81a or 81b

80b. Petals united, forming a tubular, or bell-shaped, or flat and disk-shaped corolla . . . . . 89a or 89b

81a. Flower irregular (shape of 1 or more petals different from other petals, or shape of 1 or more sepals different from other sepals; flower not appearing uniform from all sides) . . . . . 82a or 82b

81b. Flower regular (all petals of the same shape and all sepals of the same shape; flower appears uniform from all sides) . . . . . 86a or 86b

82a. Flowers in umbels; stems often hollow; base of leafstalk surrounding stem . . . . . Carrot or Parsley Family pp 110–117

82b. Flowers not in umbels, or if in umbels the leafstalks slender and not surrounding stem . . . . . 83a or 83b

83a. Flowers pea-like or bean-like, lower 2 petals (the keel) often appearing fused at the tips; leaves compound . . . . . Legume or Bean Family pp 90–93

83b. Flowers not pea-like or bean-like; leaves simple, may be lobed . . . . . 84a or 84b

84a. Flowers pansy-like, yellow or yellowish-white, each on a long slender stalk from among the leaves . . . . . Field violet p 107

84b. Flowers not pansy-like, white, yellowish, or blue . . . . . 85a or 85b

85a. Flowers white or yellowish, flat or disk-shaped, in long, slender racemes or thick spikes . . . . . mulleins pp 136–137

85b. Flowers blue, tubular, with slender lobes and long protruding stamens; plant covered with stiff hairs which have thickened bases, not woolly . . . . . . Blueweed p 124

86a. Flowers in umbels; leaves variously compound, leafstalks broad-based and surrounding stem; plants usually aromatic; flowers white or yellow . . . . . Carrot or Parsley Family pp 110–117

86b. Flowers not in umbels, or if in umbels then leafstalks with slender base not surrounding stem . . . . . 87a or 87b

87a. Plants with small, fleshy, overlapping leaves; seedpods small and separate . . . . . Mossy stonecrop p 84

87b. Plants without fleshy leaves . . . . . 88a or 88b

88a. Stipules or bracts present at the base of the leafstalks, base leafstalks not expanded and not surrounding stem; sepals, petals and stamens attached to an hypanthium (distinct rim or shallow cup) surrounding pistils . . . . . Rose Family pp 85–89

88b. Stipules or bracts not present; base of leafstalk expanded and surrounding stem; sepals, petals and stamens attached directly to the receptacle around or below the pistils . . . . . buttercups pp 66–67

89a. Stamens many and united by their filaments into a tube in the center of the flower (Figure 92C); fruits ("seeds") in a ring around a common center . . . . . Mallow Family pp 102–105

89b. Stamens 4 or 5 and not united by their filaments . . . . . 90a or 90b

90a. Plants trailing or twining . . . . . 91a or 91b

90b. Plants erect or spreading . . . . . 92a or 92b

91a. Flowers large, trumpet- or funnel-shaped, white or pinkish, about 2.5 cm (1 in.) diameter or larger; leaves spade-shaped . . . . . Morning-glory Family pp 122–123

91b. Flowers small, star-shaped, blue, purple or rarely white, less than 12 mm (½ in.) diameter; leaves ovate without lobes, mitten-shaped with 1 or 2 small lobes at base; plant with unpleasant odor when bruised . . . . . Climbing nightshade p 132

92a. Stem and leaves densely white-woolly; stem stiffly erect, tall, thick; flowers dense in long, thick, club-shaped spikes . . . . . Common mullein p 136

92b. Stems and leaves not densely white-woolly . . . . . 93a or 93b

93a. Seeds produced in clusters of 4 small, hard nutlets which separate but do not open up; plants rough hairy or soft hairy, stems round . . . . . Borage Family pp 124–125

93b. Seeds produced in fleshy berries or dry pods which open and release the seeds; plants hairless or if hairy, not rough-hairy . . . . . 94a or 94b

94a. Seeds produced in small fleshy berries or large spiny pods; plants usually with unpleasant odor when bruised . . . . . Nightshade or Potato Family pp 131–135

94b. Seeds produced in small, dry, non-spiny pods; plants usually without disagreeable odor . . . . . 95a or 95b

95a. Flowers blue or mauve, bell-shaped, at least 1.5 cm (⅗ in.) long . . . . . Creeping bellflower p 152

95b. Flowers white or yellow, if blue then less than 1 cm (⅖ in.) long . . . . . 96a or 96b

96a. Flowers disk-shaped or almost flat, arranged in long, slender racemes; petals 5, nearly equal . . . . . Moth mullein p 137

96b. Flowers snapdragon-shaped with a long spur, arranged in short compact racemes or singly from leaf axils throughout the plant . . . . . 97a or 97b

97a. Flowers yellow and orange or yellow and white, 2 cm (⅘ in.) or longer including spur . . . . . toadflaxes p 138

97b. Flowers white or bluish, usually less than 1 cm (⅖ in.) long including spur . . . . . Dwarf snapdragon p 138

98a. (From 4a, underground parts with tubers) Leaves long, slender, grasslike . . . . . 99a or 99b

98b. (From 4a, underground parts with tubers) Leaves not grasslike, their length seldom more than 2 times their width . . . . . 100a or 100b

99a. Plant with strong onion odor . . . . . Wild garlic p 35

99b. Plant without onion odor . . . . . Yellow nut sedge p 34

100a. Plant with tendrils . . . . . 101a or 101b

100b. Plant without tendrils . . . . . 102a or 102b

101a. Leaves broad-ovate or somewhat heart-shaped, softly to harshly hairy; flowers bright yellow . . . . . Goldencreeper p 150

101b. Leaves (actually leaflets) narrowly elliptic; flowers pinkish to red-purple . . . . . Tuberous vetchling p 93

102a. Leaves not compound; either heart-shaped or elliptic . . . . . 103a or 103b

102b. Leaves compound (made up of several leaflets) . . . . . 104a or 104b

103a. Leaves at the ground surface heart-shaped; leaves on the stem lance-shaped, pointed, not rough to the touch; flowers blue, bell-shaped . . . . . Creeping bellflower p 152

103b. Leaves ovate or elliptic, harsh or rough to the touch, never in a rosette at the ground surface, opposite (2 per node) on the lower part of the stem, alternate (1 per node) nearer the flowers . . . . . Jerusalem artichoke p 154

104a Tuberous roots Dahlia-like or cigar-shaped, surrounding base of plant . . . . . Compare: waterhemlocks pp 115-116, Angelica p 115

104b. Tuberous roots not Dahlia-like, usually just a thickening (sometimes cigar-shaped) on a whitish horizontal root at some distance from the aboveground shoot . . . . . Goutweed p 111

# HORSETAIL FAMILY (Equisetaceae)

**Field horsetail**, *Equisetum arvense* L., (Figure 1, Plates 1, 2) [prèle des champs, Horse-pipes, Joint-grass, Mare's-tail] Perennial. Never has flowers or seeds but reproduces by spores and by horizontal underground stems (rhizomes). These are dark brown or blackish, spread out for long distances and are often 1 m (3⅓ ft) below the ground surface. They send up numerous above-ground shoots but of two different types at different times of the year. In early spring, the shoots are whitish to light brown, unbranched, hollow, jointed stems (B, Plate 1); each node (joint) surrounded by a toothed (b) sheath (a); and the tip of stem ending in a brownish, spore-producing cone (c). After the cones have shed their spores (early May) these colorless stems wither and die down. At the same time, the second type of shoot emerges from the ground. These are green, slender, erect, hollow stems (A, Plate 2), leafless but with whorls of 6 to 8 branches at nearly every node; the branches usually branching again; stems and branches surrounded by a small, toothed sheath (d) at each node but never ending in a spore-producing cone. Both kinds of stems are easily pulled apart at the nodes and can be fitted back together like sections of a stove pipe.

Field horsetail occurs in all parts of Ontario in depressional areas with poorly drained soils, as well as in sandy or gravelly soils with good drainage such as railroad embankments and roadsides. An intense competitor, it can severely suppress crops and other plants. In addition, it contains a substance which destroys vitamin B in animals. It is especially poisonous to young horses. **Hay containing this weed may be more poisonous than fresh plants in the field.**

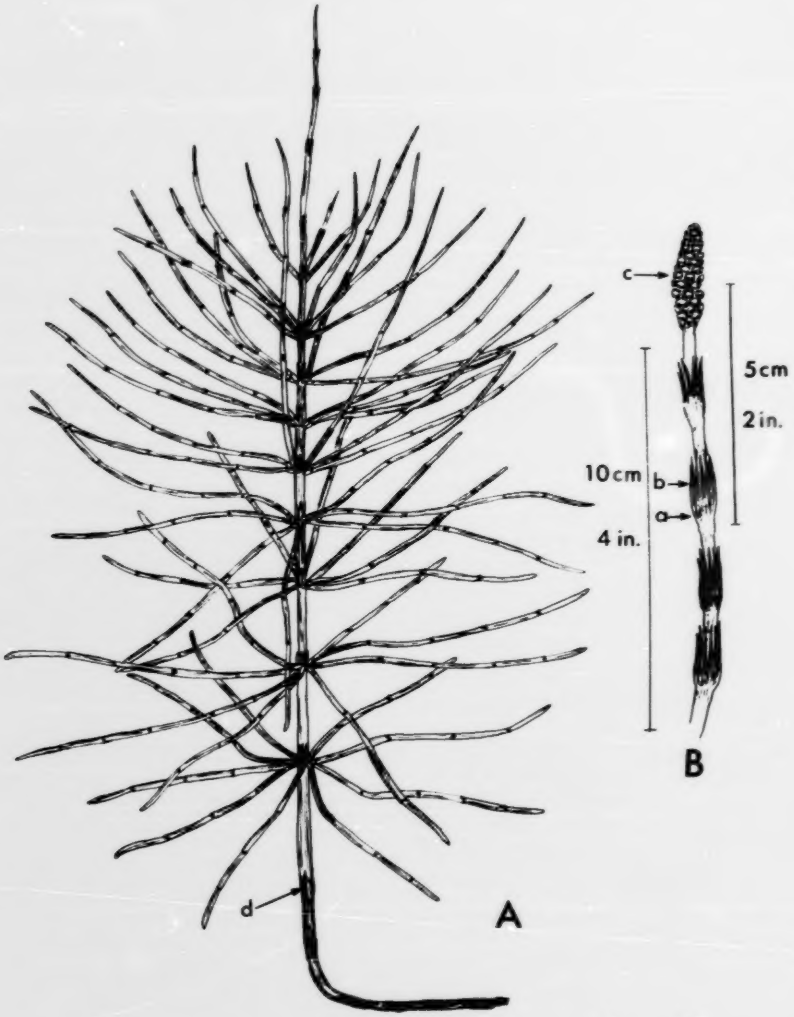


Figure 1. **Field horsetail** A. Vegetative shoot (green). B. Spore-producing reproductive shoot (whitish to light brown).

# FERN FAMILY (Polypodiaceae)

**Eastern bracken**, *Pteridium aquilinum* (L.) Kuhn var. *latiusculum* (Desf.) Underw., (Figure 2, Plate 3) [fougère d'aigle, Bracken, Bracken fern, Brake, Fiddlehead, Pasture-brake] Perennial. Never has flowers or seeds but reproduces by spores and by shallow or deep, widely spreading, dark brown underground stems. Young leaves (crosiers) are curled like a fiddlehead as they emerge from the ground. After straightening out, the leaf is compound with 3 main divisions from the tip (b) of the leafstalk (a) and all 3 redivided into numerous smaller divisions. The whole compound leaf may be 30 – 140 cm (1 – 4½ ft) long and 30 – 100 cm (1 – 3⅓ ft) broad and has a triangular appearance. After midsummer, brown spores are produced in dense bands on the undersides of many of the leaf segments (B), but may be partly hidden at first by the inrolled leaf margins (c).

Eastern bracken occurs throughout central, eastern, northern and northwestern Ontario in many soil types ranging from moist to dry situations, but usually near or under open woods. Leaves of Eastern bracken are poisonous to livestock both when fresh and dry in hay. Its poisonous properties are complex, including an interference with vitamin B as does Field horsetail. Recent evidence has indicated that leaves of Eastern bracken will produce certain types of cancer in cattle and in laboratory animals. The practice by some people of eating young crosiers of this fern in early spring as a "wild asparagus" **should be strongly discouraged.**

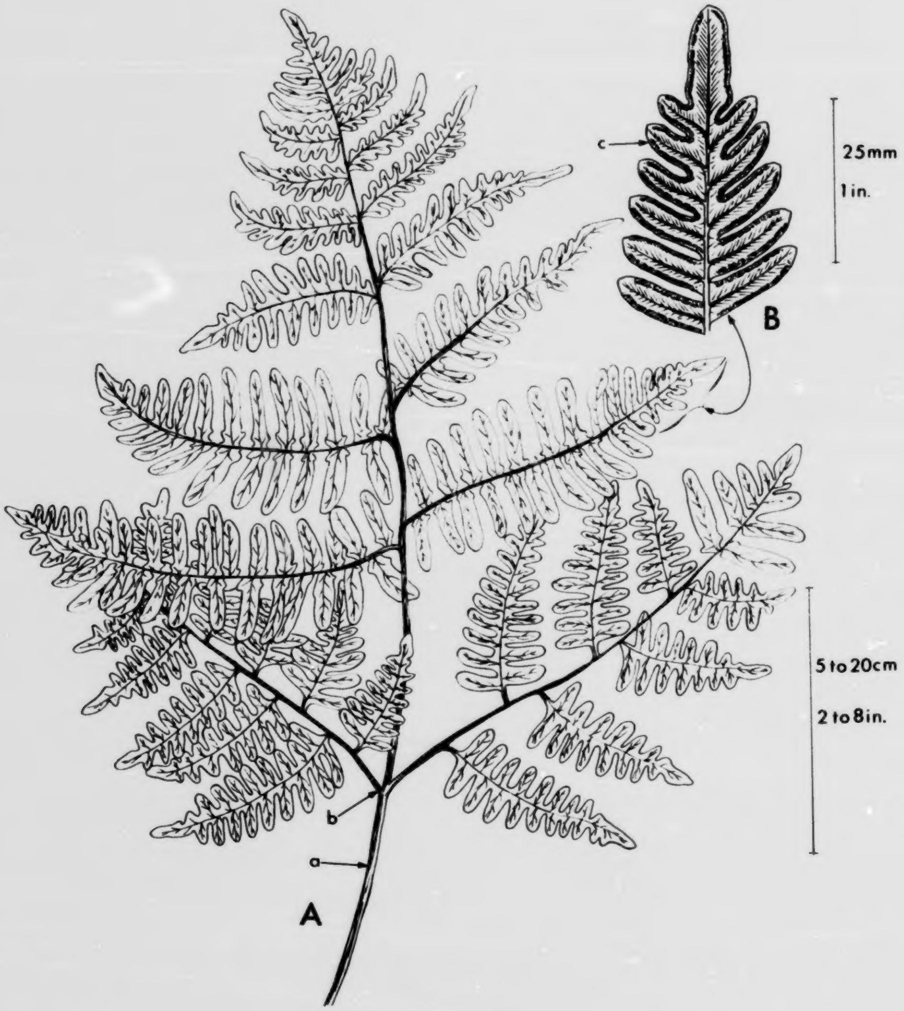


Figure 2. **Eastern bracken** A. Leaf (frond). B. Underside of portion of leaf showing spore-producing area along margins.

# GRASS FAMILY (Gramineae)

Many kinds of grasses grow in places where, for one reason or another, they are not wanted. Space permits inclusion of only the more important weedy kinds in Ontario. Identification of a grass is usually easy with a good specimen. A good specimen includes all the parts: root, stem, leaves and inflorescence (the seed-producing "head"). But farmers and others often have to identify grasses in very young stages, long before the head emerges. Fortunately, this is also possible as most grasses have distinctive "leaf-base" characteristics, just as individual people have distinctive fingerprints. Leaf-base features can be seen with the naked eye or with an inexpensive hand magnifying glass. The chief stem and leaf-base characteristics of a typical grass are illustrated in Figure 3, Plate 15.

The grass leaf has two major parts: the *leaf blade* which sticks out at an angle from the stem, and the *leaf sheath* which is more or less tightly wrapped around the stem and is the connecting part between the leaf blade and the *node* or joint of the stem (culm). Leaf-base characteristics are at the junction of leaf blade and leaf sheath. The *ligule* is right next to the stem where the leaf blade joins the sheath. It sticks upwards from the inside of the sheath, and may be a very thin, soft, erect membrane of white tissue, or a dense row of short, fine hair like an eyelash. It is most easily seen when one grasps the leaf blade close to the stem and gently pulls both the blade and sheath away from the stem. Nearly all grasses have a ligule of some kind. One or 2 *auricles* may also be present on some grasses. Auricles are small soft claws or points of tissue which stick out (Plate 15) from the uppermost margins of the leaf sheath and clasp the stem on the side opposite the leaf blade.

In the following pages, the illustrations and descriptions of weedy grasses include characteristics which are useful for identifying both young and old plants.

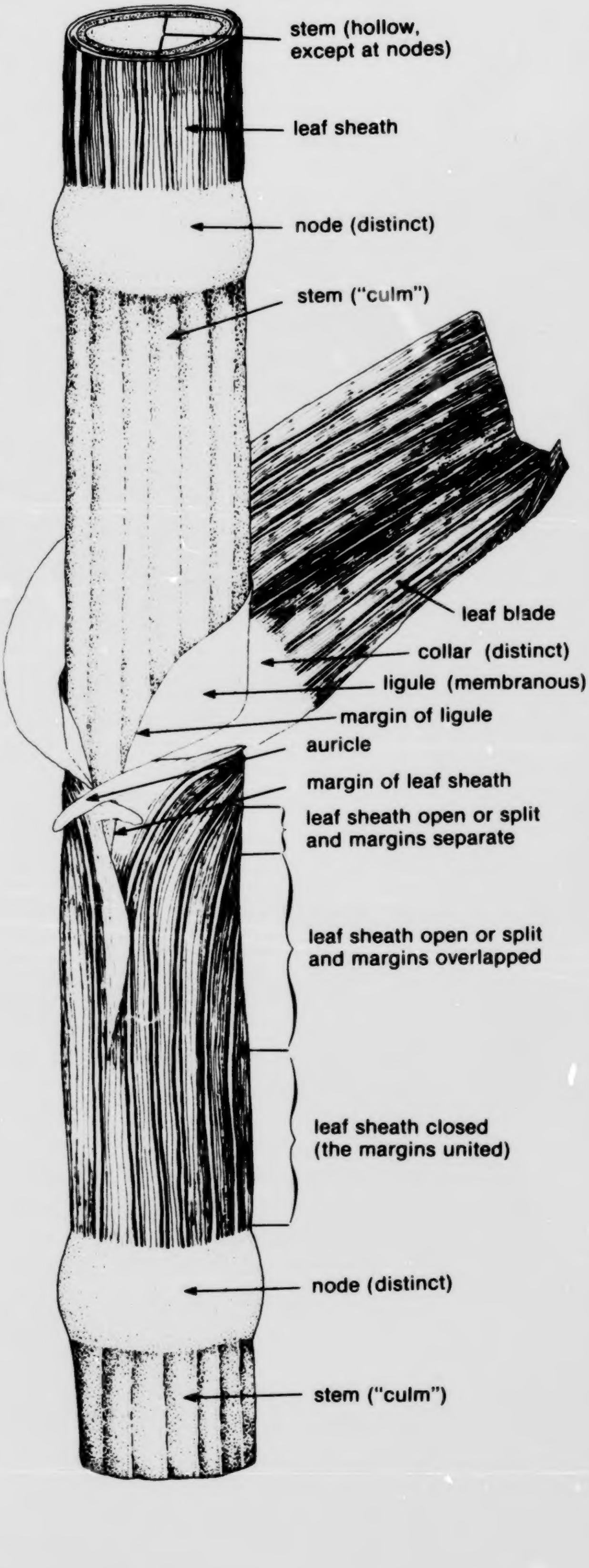

stem (hollow, except at nodes)
leaf sheath
node (distinct)
stem ("culm")
leaf blade
collar (distinct)
ligule (membranous)
margin of ligule
auricle
margin of leaf sheath
leaf sheath open or split and margins separate
leaf sheath open or split and margins overlapped
leaf sheath closed (the margins united)
node (distinct)
stem ("culm")

Figure 3. Leaf-base characteristics of a typical grass.

**Smooth brome**, *Bromus inermis* Leyss., (Figure 4) [brome inerme, Brome grass] Perennial spreading by seed and by dark-colored underground stems (rhizomes). These have nodes or joints (a) and internodes (b), and blunt tips (c). They produce roots and branches from the nodes. Some branches turn upwards to emerge as leafy stems. Others remain underground producing still more branches. Each internode (b) is covered by a large brown to blackish, dry, scaly sheath giving the whole rhizome a dark color. Stems erect, 20 – 100 cm (8 – 40 in.) tall, leafy. Leaves 10 – 40 cm (4 – 16 in.) long, pointed, flat, 5 – 12 mm (⅕ – ½ in.) wide, and usually marked with a light green or wrinkled "tatoo" resembling the letter W near the middle of the blade. Leaf sheath closed (d) (margins united) except for a small V-shaped notch (e) at the top; ligule (f) a membrane 1 – 2 mm (1/25 – 1/12 in.) long; auricles absent or very short (g) and rounded. Inflorescence or "seed head" is a branched panicle, 10 – 20 cm (4 – 8 in.) long, the stiff branches spreading when pollinating but afterwards more erect and tighter. Each spikelet (h) 2 – 2.5 cm (⅘ – 1 in.) long, without awns (hence the name "smooth"), or with awns (j) not over 2 mm (1/12 in.) long, and 5 to 9 flowered (having 5 to 9 fertile florets which become the individual "seeds").

Smooth brome is widely cultivated as an excellent hay and pasture grass, and as a soil binder along roadsides, eroded banks, etc, throughout Ontario. But it often persists after cultivation and may infest succeeding crops, gardens and lawns. Old stands may become sod-bound, producing many short, leafy stems but few or no seed heads. It is distinguished by the letter W on some leaf blades, the closed leaf sheath (d), absence of distinct auricles (see Figure 10B), and the blunt-tipped rhizomes (c) with dark brown scaly sheaths as long as or longer than each internode (b), and by the branched, erect panicle with fairly large smooth spikelets.

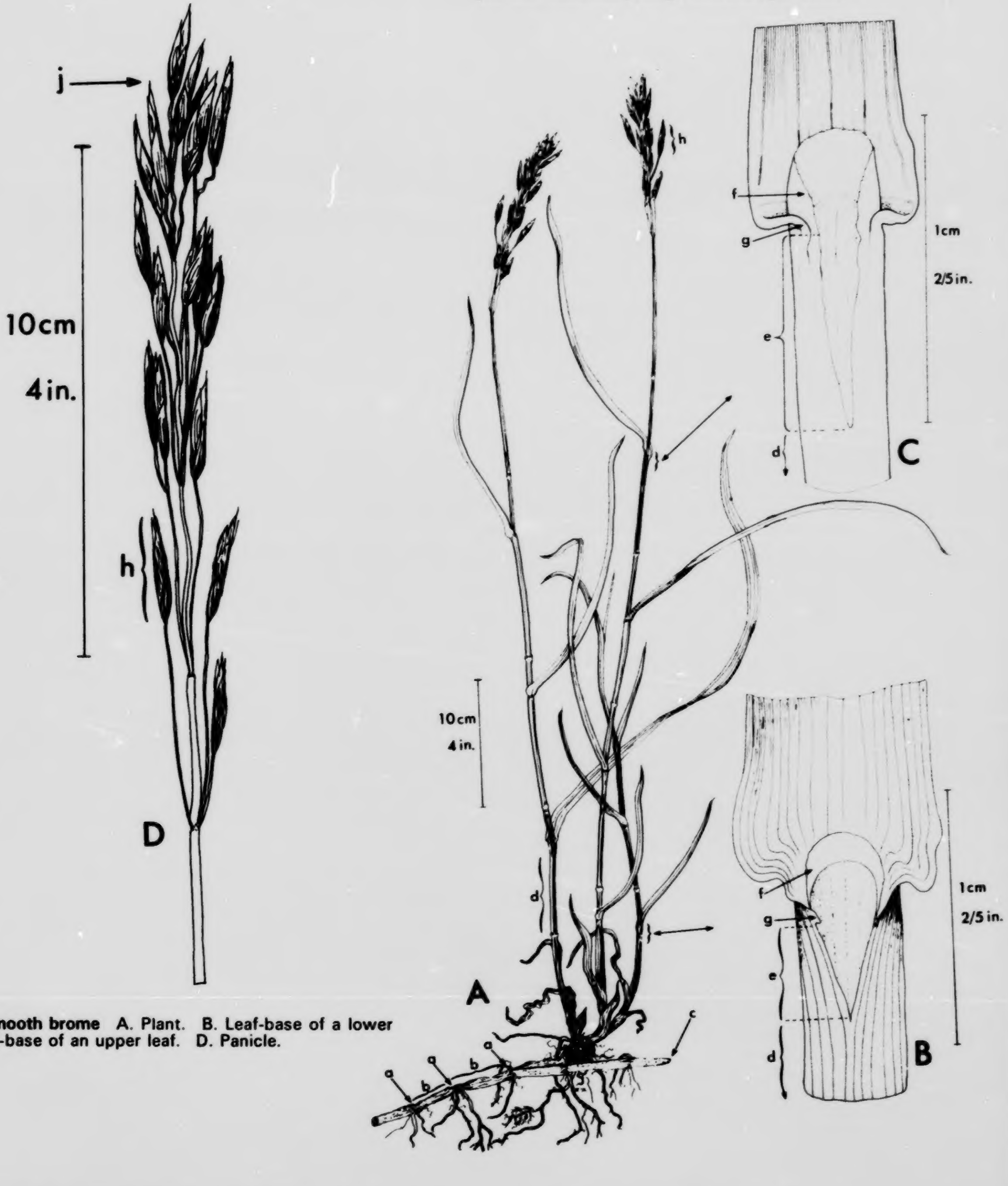


**Figure 4. Smooth brome A. Plant. B. Leaf-base of a lower leaf. C. Leaf-base of an upper leaf. D. Panicle.**

**Chess,** *Bromus secalinus* L., (Figure 5) [brome des seigles, Cheat] Annual or winter annual, reproducing only by seed. Stems 30 – 90 cm (1 – 3 ft) tall, single or 3 to 4 stems from 1 root crown; roots fibrous. Stems smooth but finely hairy on the nodes (a) hairiness visible with magnification; leaves 3 – 9 mm (⅛ – ⅜ in.) wide, either smooth or softly hairy (b) on either or both surfaces; leaf sheaths smooth or lower ones hairy; lower leaf sheaths closed (margins united) nearly to the top (c); upper leaf sheaths split with overlapping margins (d). Ligule (e) membranous, 1 – 2 mm (1/25 – 1/12 in.) long. No auricles. Inflorescence a panicle with rather stiff, nearly erect branches; spikelets (f) have a firm, plump appearance 1 – 3 cm (⅖ – 1⅕ in.) long. 6 – 10 mm (¼ – ⅖ in.) wide, hairless and awnless or with short awns (g) usually less than 2 mm (1/12 in.) long, each spikelet having 5 to 15 florets ("seeds") (h).

Chess occurs in fields and waste places throughout the agricultural areas of Ontario but is more common in the southern and eastern counties. It is distinguished by its annual habit, firm, plump spikelets, smooth stems with finely hairy nodes, and combination of lower leaf sheaths closed and upper ones split with overlapping margins.

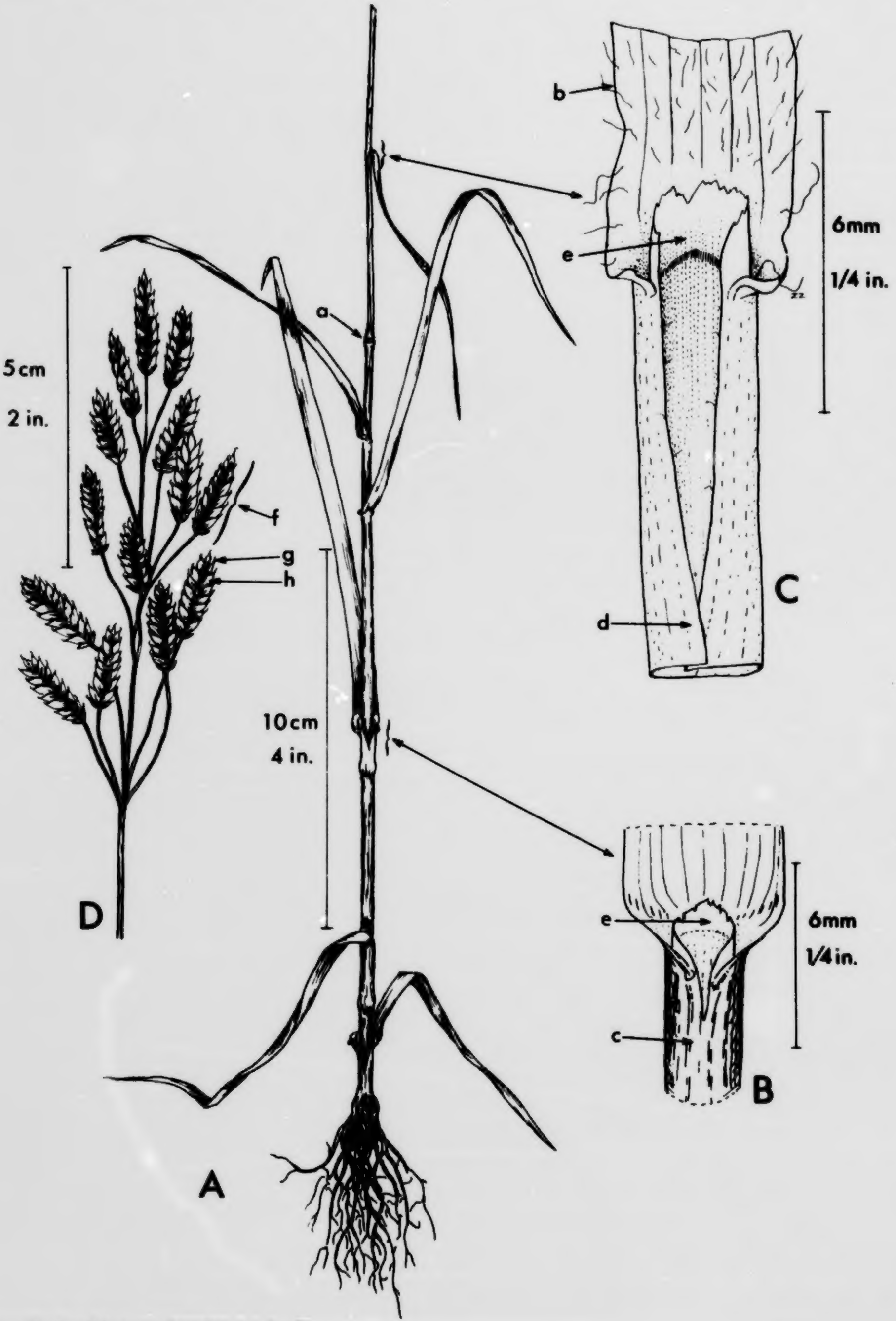


Figure 5. **Chess** A Plant. B. Leaf-base of a lower leaf. C. Leaf-base of an upper leaf. D. Panicle.

**Upright brome,** *Bromus racemosus* L., (Figure 6) [brome dressée] Annual, reproducing only by seed. Stems erect, 30 – 100 cm (12 – 40 in.) tall; leaves hairy; lower leaf sheaths velvety with short, downward-pointing hair; upper leaf sheaths and bare stems above the leaves rough with extremely short, downward-pointing hair (a); leaf sheaths closed (margins united), lower ones with a small V-shaped notch (b), upper with a notch as long as 1 – 5 cm (⅖ – 2 in.) (B) and may have overlapping margins; ligule (c) membranous, 0.3 – 1.5 mm (1/75 – 1/16 in.) long; no auricles. Branches of panicle short and stiffly erect (hence the name “upright); spikelets (d) 12 – 22 mm (½ – ⅞ in.) long not including the awns (e) which add another 5 – 8 mm (⅕ – ⅓ in.) to their length, 4 – 7 mm (⅙ – ¼ in.) wide; 4 to 10 florets (“seeds”) (f) per spikelet.

Upright brome occurs in grainfields and waste places mainly in south central and southwestern Ontario. It is distinguished from Chess by its rough stems, hairy leaves and prominently awned spikelets, and from Downy brome by its thicker spikelets with much shorter awns.

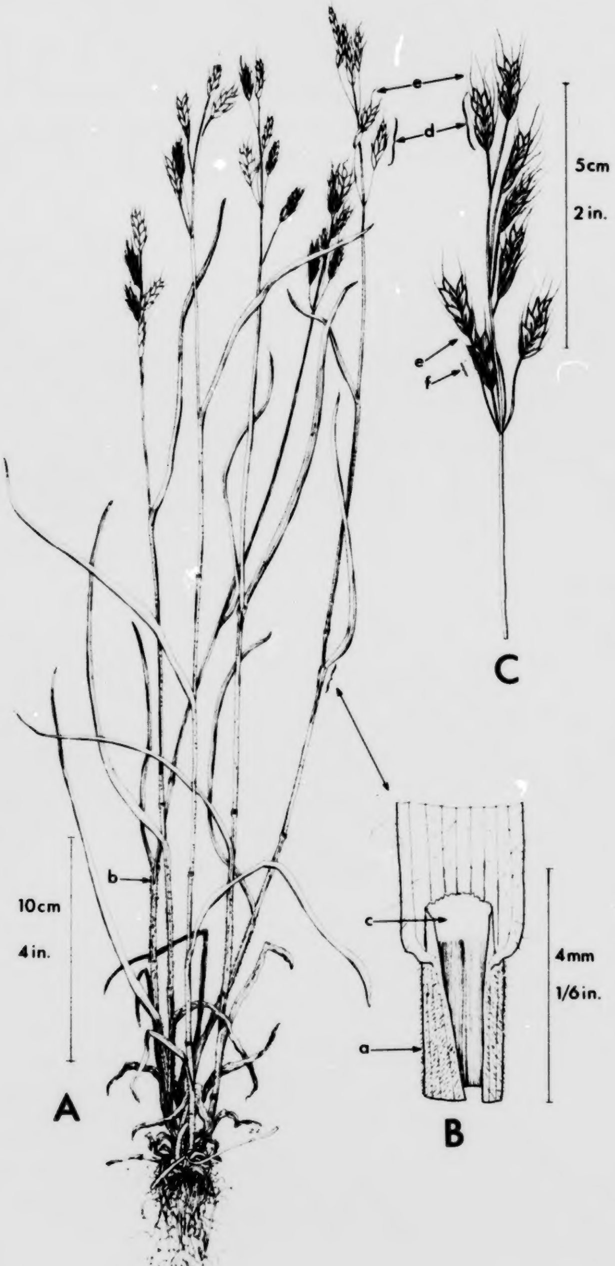
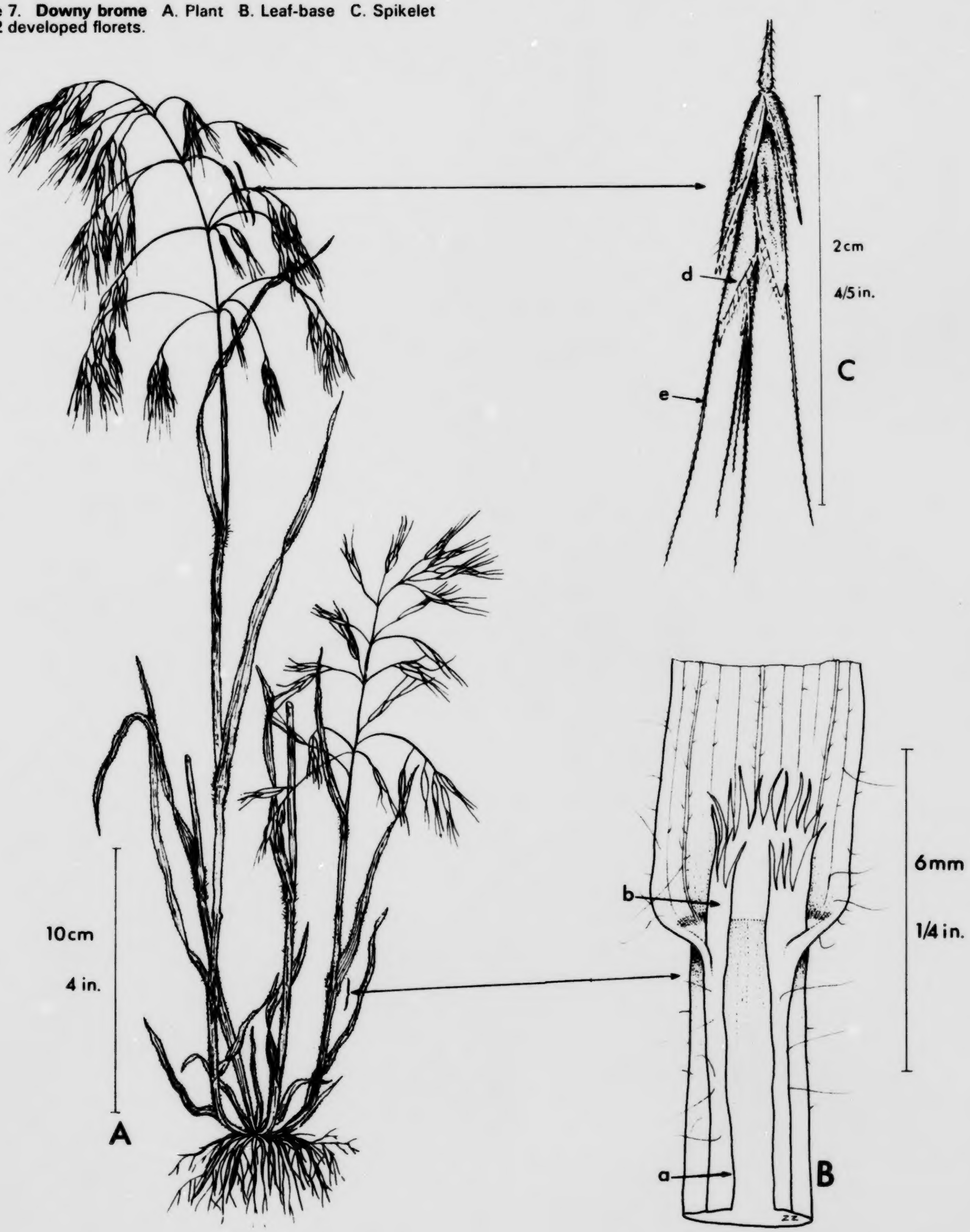


Figure 6. **Upright brome** A. Plant. B. Leaf-base of an upper leaf. C. Panicle.

**Downy brome,** *Bromus tectorum* L., (Figure 7) [brome des toits, Cheat, Cheat grass brome, Downy chess, Slender chess] Annual or winter annual, reproducing only by seed. Stems 20 – 60 cm (8 – 24 in.) tall and slender, but may be only 5 cm (2 in.) in dry, gravelly situations; stems, leaves and leaf sheaths densely and softly hairy; margins of leaf sheath separate and not united (a) except near the node at the bottom of each sheath; ligule (b) membranous, 3 mm (⅛ in.) long; panicle 7 – 20 cm (3 – 8 in.) long with many soft, slender, drooping to partly erect branches; spikelets (C), including awns (e), 2 – 4 cm (⅘ – 1⅗ in.) long, and having 2 to 7 florets ("seeds") (d). Young plants are bright green but stems, leaves and inflorescence often turn pinkish to purplish-brown with age. On mature and dry plants, the awns become quite stiff and spreading, and the hairy leaves rather harsh.

Downy brome occurs throughout southern Ontario, especially on sandy or gravelly soils, in poor pastures, roadsides, embankments, beaches and waste places. It is distinguished from Smooth brome, Chess and Upright brome by its hairy texture and thin, long-awned spikelets.

Figure 7. **Downy brome** A. Plant B. Leaf-base C. Spikelet with 2 developed florets.



**Stink grass,** *Eragrostis megastachya* (Koel.) Link, (Figure 8) [èragrostide fétide, Love grass, Stinking love grass, *E. cilianensis* (All.) Lutati] Annual, reproducing only by seed. Stems 10 – 50 cm (4 – 20 in.) long, tufted, outer stems of a bunch often lying on the ground and rooting at the nodes (a) but with upturned tips; leaves hairless, flat, 3 – 10 mm (⅛ – ⅜ in.) wide; leaf sheaths split, the margins overlapping, not hairy except for a tuft of short (1 – 2 mm, 1/25 – 1/12 in.) hair (b) on either side at the junction of blade and sheath; tiny glands (c) present on leaf margins, sheaths, and in a ring (d) encircling the stem just below each node (e). Inflorescence, dark gray-green to light brownish, branching but either dense and compact or open and spreading, both kinds often on the same plant; spikelets (f) small, oblong, 5 – 15 mm (⅕ – ⅗ in.) long, 3 mm (⅛ in.) wide but having 10 to 40 florets; each floret about 2.5 mm (1/10 in.) containing a single, tiny, yellowish to reddish-orange, egg-shaped kernel ("seed") about 0.7 mm (1/30 in.) long. Fresh plants have a distinct odor which many people find disagreeable.

Stink grass occurs in coarse sandy or gravelly soils in edges of fields, waste areas, rights-of-way throughout southern Ontario, being most common in central and southwestern areas. Introduced from Europe.

**Tufted love grass,** *Eragrostis pectinacea* (Michx.) Nees, (not illustrated) [èragrostide pectinée] has a similar growth form but is smaller, with finer leaves and stems, a more open branching panicle with smaller spikelets, and lacks the glands which are so characteristic of Stink grass. This native plant is found in coarse soils along beaches, rights-of-way and other disturbed areas throughout southern Ontario.

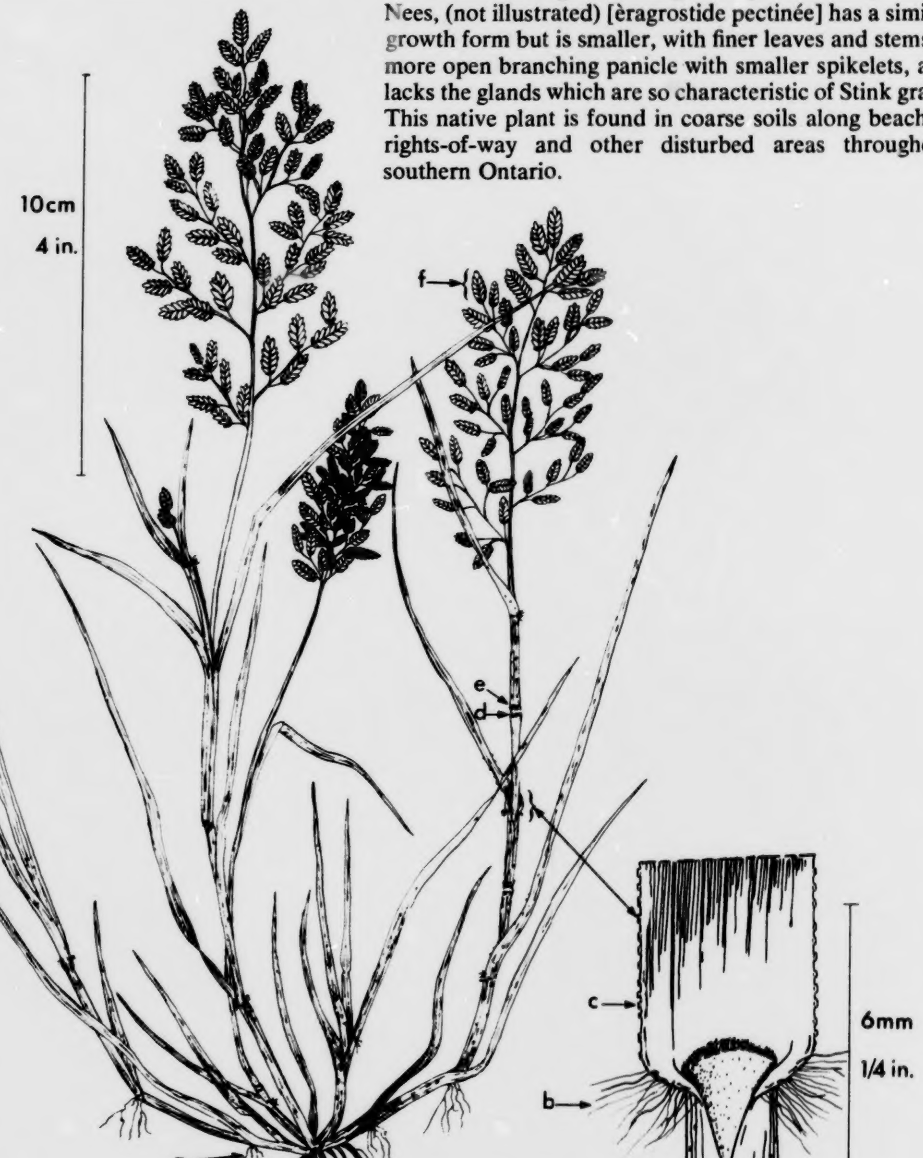


Figure 8. **Stink grass** A. Plant. B. Leaf-base.

**Wild oats**, *Avena fatua* L., (Figure 9) [folle avoine, Black oats] Annual, reproducing only by seed. Very similar to cultivated oats. Stems 60 – 120 cm (2 – 4 ft) high, with distinct dark-colored nodes; leaves flat, 10 – 60 cm (4 – 24 in.) long, often 15 mm (⅗ in.) or wider, tapered to a long thin point, and with a prominent, light-colored midrib; leaf sheath without hair or slightly hairy, split, with margins transparent (a) and overlapping in the lower ⅔ of each leaf sheath; ligule (b) membranous 2 – 5 mm (1/12 – ⅕ in.) long; prominent hair (c) sometimes on the margins of the collar; inflorescence a large panicle with slender branches; spikelets (d, C) with 2 large papery glumes (e) and usually 2 to 4 florets ("seeds") (f, D); florets varying from dull white through yellow or gray to brown or nearly black, usually hairy but sometimes nearly smooth, with a sharp-pointed sucker mouth (g) at the lower end and a long (3 – 4 cm, 1¼ – 1⅝ in.), bent, twisted awn (h).

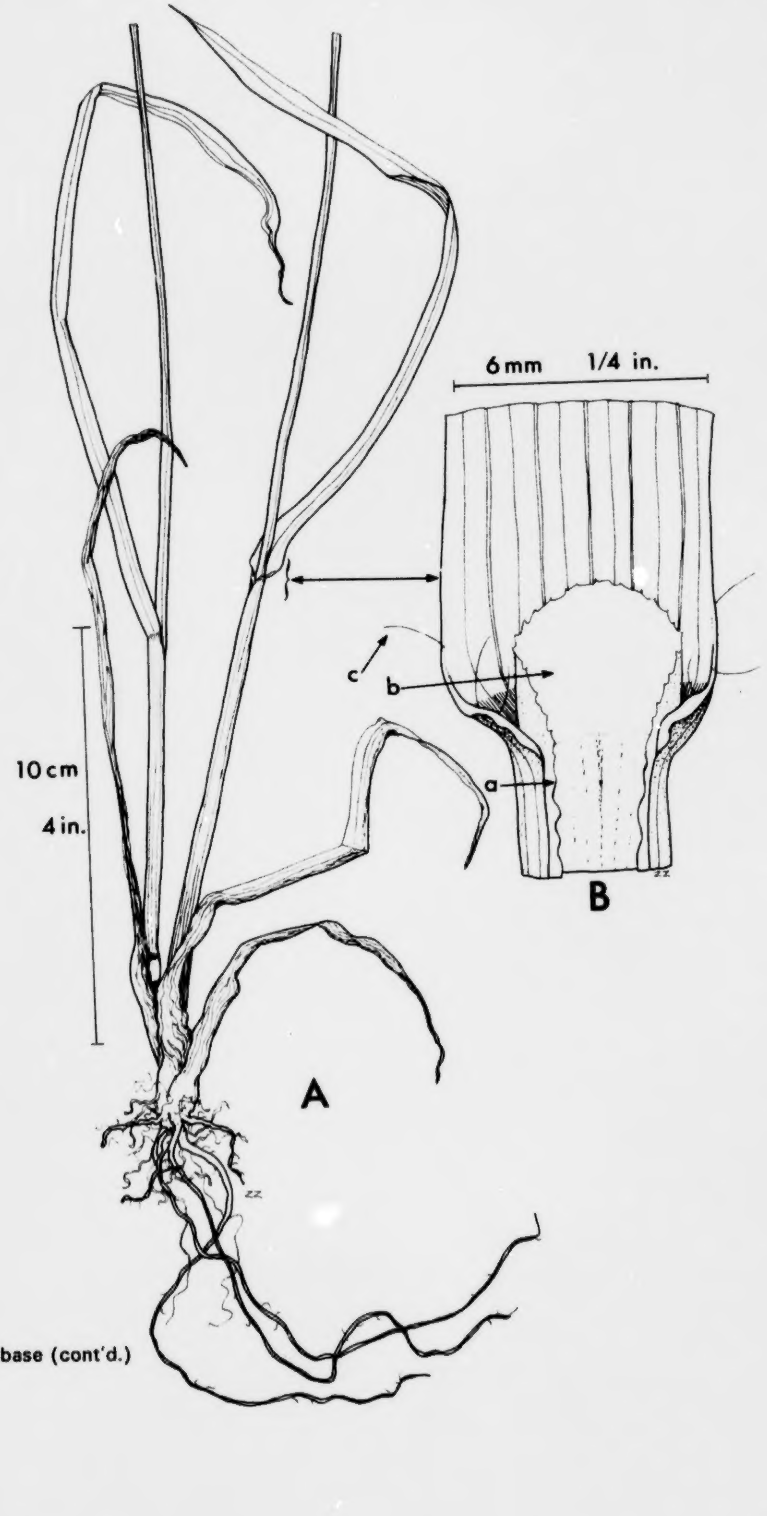


Figure 9. **Wild oats** A. Base of plant. B. Leaf-base (cont'd.)

Wild oats occurs in cultivated land on all soil textures throughout Ontario and seems to be increasing. This is one of the most serious weeds in Canada in terms of competition with annual grain crops. It is distinguished from tame or cultivated oats by its frequently taller growth, somewhat yellowish-green inflorescence when compared to the light bluish-green of cultivated oats; its hairy, dark-colored, sharp-pointed "seed" has a long, twisted, black awn whereas that of cultivated oats is hairless, always a tawny white, lacks a sharp point, and is either without an awn or with a very short straight awn. The seeds of Wild oats shatter very readily when ripe but their germination is delayed, often for several years, in the ground. Cultivated oats normally does not shatter after ripening and its seeds are able to germinate as soon as mature. Some plants of oats have characteristics which are intermediate between the wild and cultivated kinds. These have been called "False wild oats" and may be hybrids between the two types.

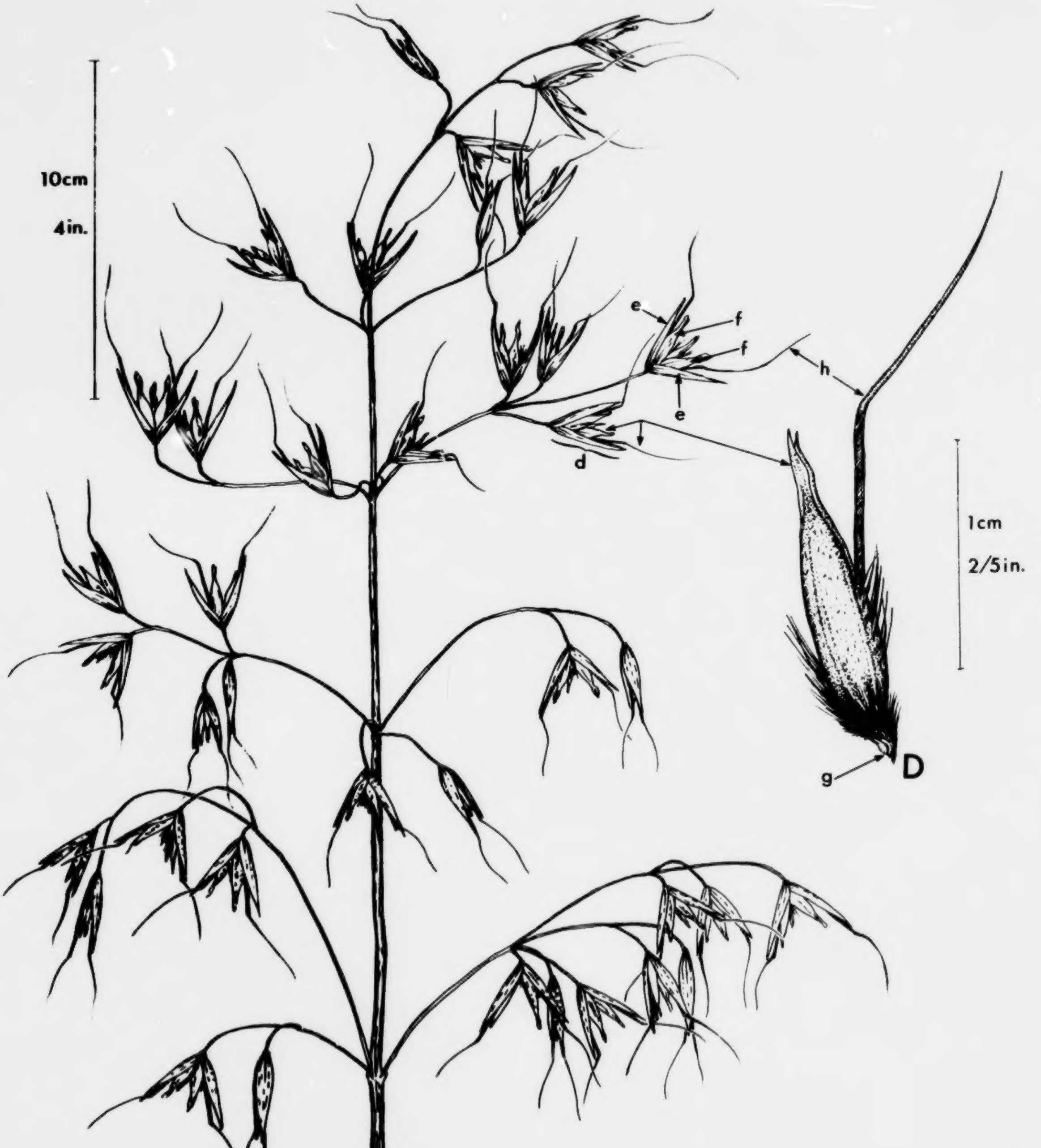
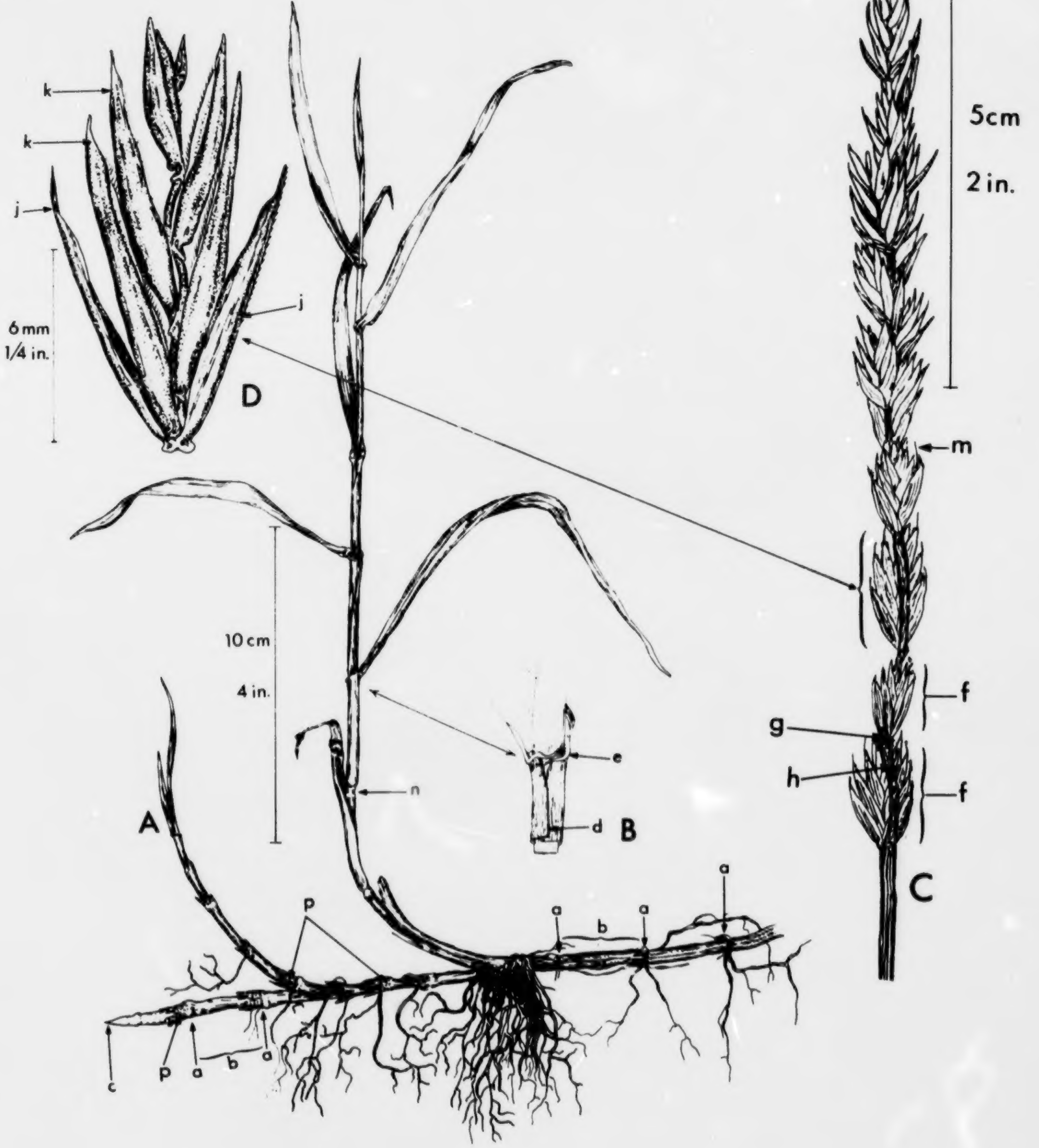


Figure 9. **Wild oats** C. Panicle. D. 1 floret ("seed").

**Quack grass,** *Agropyron repens* (L.) Beauv., (Figure 10, Plate 15) [chiendent, Couch grass, Quitch grass, Scutch grass, Twitch, Twitch grass] Perennial, spreading by seed and by light-colored underground stems (rhizomes). Rhizomes have nodes or joints (a) and internodes (b), and hard, white, very sharp-pointed tips (c). They produce roots and branches from the nodes. Some branches turn upwards to emerge as leafy stems. Others continue growing and branching horizontally and expand the patch. Each internode is partly covered by a short, light brown, dry, scaly sheath (p). Stems erect, 30 – 120 cm (1 – 4 ft) tall, either not flowering during the whole growing season (A) or producing a slender, unbranched inflorescence called a spike (C); stem nodes (joints) (n) distinct and often purplish. Leaves flat, nearly smooth; lower leaf sheaths hairy, upper ones often smooth, sheaths split with margins overlapping (d); auricles (e) present and clasping the stem like little hooks (Plate 15). Spike (seed head) with 1 (rarely 2) unstalked spikelet (f, D) at each node or joint (g); spikelets alternating from one side of the rachis (central stalk of the spike) (h) to the other, and with their flat or broad side towards the rachis; each spikelet made up of 3 to 7 florets ("seeds") (k) side by side between 2 outer glumes (empty chaff) (j), and either with short awns (bristles) (m) or awnless (as in D).

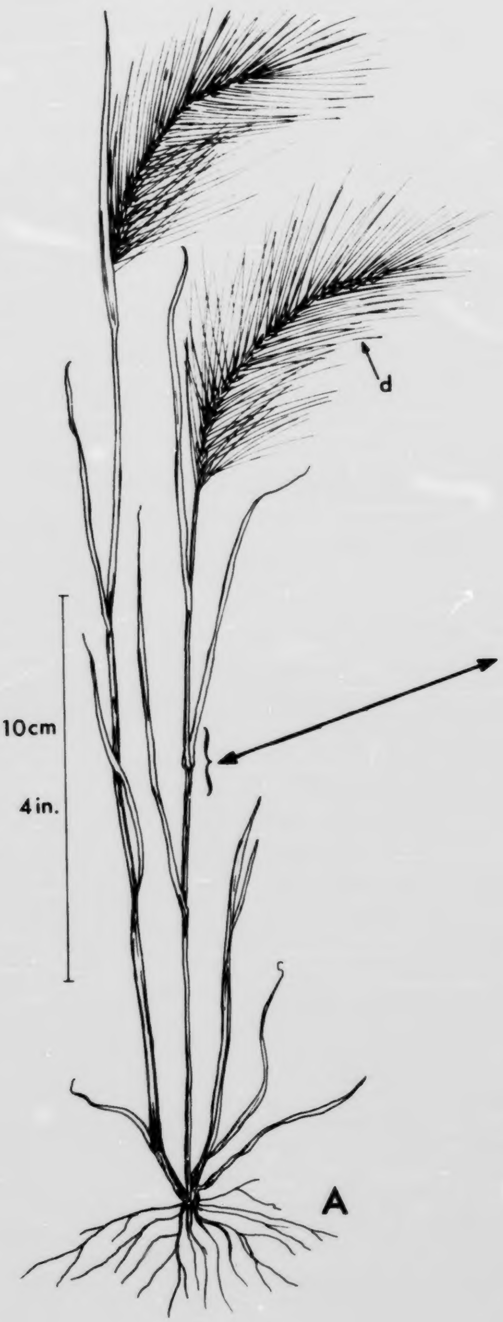
Quack grass occurs in cultivated fields, pastureland, waste places, rights-of-way, lawns and gardens in almost any soil texture throughout Ontario. This is the most troublesome perennial weedy grass in Ontario and throughout Canada. It is distinguished from Smooth brome by its slender, unbranched seed head (spike) (C), the presence of auricles (e), the split sheath (d), and the sharp-pointed (c) light-colored rhizomes with short scaly sheaths (p).

Figure 10. **Quack grass** A. Nonflowering plant. B. Leaf-base. C. Spike. D. 1 spikelet.



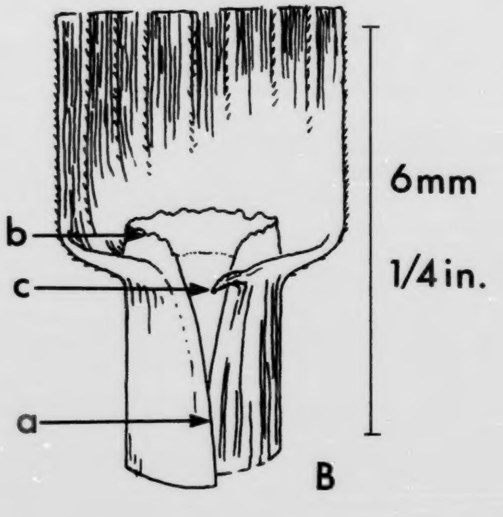
**Canada wild rye**, *Elymus canadensis* L., (not illustrated) [élyme du Canada], has stems and heads about the same size and height as Quack grass but it grows as a bunch grass (does not spread by rhizomes) and its spike has usually 2 or 3 spikelets (clusters of "seeds") at each node (g). **Perennial rye grass**, *Lolium perenne* L., [ivraie vivace] and **Persian darnel**, *Lolium persicum* Bois and Hoh., [ivraie de Perse] (both not illustrated), also have spike inflorescences but they have only 1 spikelet (f) at each node (g) and these are arranged edgewise to the rachis (h), having only 1 outer glume (empty chaff) (j), and giving the whole spike a very flat appearance. Both are usually shorter than Quack grass, and Persian darnel is annual while Perennial rye grass is a short-lived perennial.

Figure 11. **Foxtail barley** A. Plant. B. Leaf-base.



**Foxtail barley**, *Hordeum jubatum* L., (Figure 11, Plate 7) [orge queue d'écureuil, Foxtail, Skunk grass, Skunktail, Squirreltail, Wild barley] Annual, biennial or usually a short-lived perennial, reproducing only by seed. Stems 20 – 60 cm (8 in. – 2 ft) high, erect or spreading as a bunch grass from a mass of fibrous roots; stems smooth or slightly rough below; leaves bluish-green to grayish-green, 1.5 – 4 mm (1/16 – ⅛ in.) wide, prominently ribbed and rough on the back; leaf sheath split (a) with overlapping margins; ligule (b) very short, less than 1 mm (1/25 in.) long; auricles usually absent but occasionally 1 or 2 present (c); inflorescence (seed head) a dense, unbranched, barley-like spike, 5 – 12 cm (2 – 5 in.) long, with finely barbed, long, green or purplish awns (d), erect or nodding slightly to one side; turning yellowish or straw-colored when mature and breaking apart into separate seed-bearing units; each unit having a very sharp point and 7 long, spreading awns. These may be blown by the wind or carried in animal fur, clothing, etc.

When animals walk through or graze in areas containing mature Foxtail barley or eat hay contaminated with ripe heads of this weed the sharp-pointed, bristly segments may get into their hair, mouth, nose or eyes. Because these bristles have tiny, forward-pointing barbs, they will only slide one way. Motion of the animal's body forces these sharp-pointed segments into the skin causing skin sores, irritation of back of mouth and nasal passages, and sometimes blindness.



Foxtail barley is a native grass throughout Canada, chiefly in moist or saline depressions, but also occurring in cultivated fields, roadsides, waste areas and lawns. Before heading out, it is distinguished by its bluish to grayish-green color, split sheath (a) and short ligule (b). After heading out, the dense 1-sided "foxtail" of long, green or purplish awns is unmistakable.

**Rice cut grass**, *Leersia oryzoides* (L.) Sw., (Figure 12) [léersie faux-riz, Cut grass, Saw grass] Perennial, reproducing only by seed. Stems 1 to several from a small, hard crown with a small cluster of slightly thickened or spongy roots (a), especially when growing in wet soil. Stems 90 – 150 cm (3 – 5 ft) long, weak, at first upright but later bending or falling over, light green to straw-colored, smooth except for a narrow band of hair encircling each node (b); leaves few, widely spaced on the longer stems; leaf blades 5 – 25 cm (2 – 10 in.) long, 6 – 15 mm (¼ – ⅗ in.) wide, tapering gradually to a long, thin point, bright green with a lighter green midrib, usually with a mixture of short hair (about 1 mm, 1/25 in. long) and much shorter, extremely sharp, backward-pointing barbs (c) along margins and larger veins; leaf sheath split and usually not overlapping (B, d); ligule (e) membranous, short, flat-topped; inflorescence much-branched, pale yellowish-green, with stalkless spikelets (C, f) along each branch; each spikelet having no glumes but consisting only of a single floret or "seed."

Rice cut grass occurs only in southern Ontario. A native plant of swampy shores and streambanks, this plant is spreading along irrigation channels and drainage ditches which become clogged by its tangled stems; along moist roadside ditches and to farms, meadows and stock watering ponds. It is distinguished by its bright green leaves with extremely sharp, backward-pointing barbs (c) which can cut or tear the skin of farm animals and humans alike; and its pale yellowish-green, much-branched inflorescence, with single-seeded spikelets.

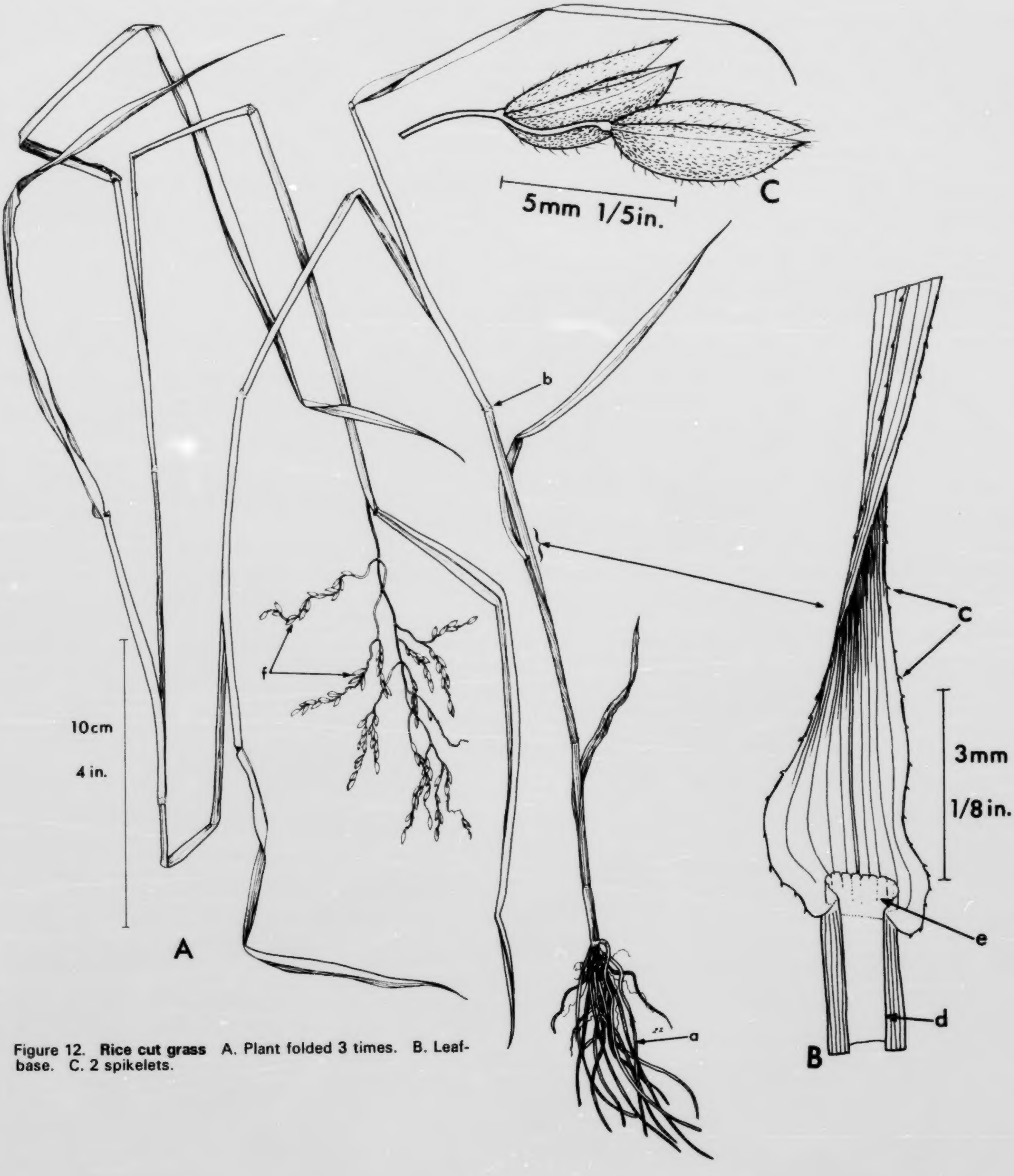


Figure 12. **Rice cut grass** A. Plant folded 3 times. B. Leaf-base. C. 2 spikelets.

**Large crab grass,** *Digitaria sanguinalis* (L.) Scop., (Figure 13, A-D) [digitaire sanguine, Finger grass, Hairy crab grass] Annual, reproducing only by seed. Stems 5 – 120 cm (2 in. – 4 ft) long, erect, spreading, or lying on the ground and rooting at nodes (a) in contact with the soil; leaves numerous near the base of the plant and scattered along the stems, 4 – 20 cm (1½ – 8 in.) long, 5 – 10 mm (⅕ – ⅖ in.) wide and gradually tapered towards the pointed tip; leaf blades and leaf sheaths sparsely to densely soft-hairy (B), the hair standing more or less straight out (b); leaf sheaths split, the margins overlapping (c); ligule (d) membranous, 0.5 – 2 mm (1/50 – 1/12 in.) long; inflorescence fingerlike, with several thin, slender, spikes (e) in whorls at the top of the stem; each spike ("finger") flattened and with the single-seeded spikelets (f) closely arranged along one side only; seeds purplish-green and ridged lengthwise.

**Smooth crab grass,** *Digitaria ischaemum* (Schreb.) Muhl., (Figure 13 E) [digitaire astringente, Finger grass, Small crab grass], very similar to Large crab grass but is usually shorter, has smooth, hairless leaf blades, and upper leaf sheaths usually smooth and hairless, the lower ones may be somewhat hairy; ligule (g) also membranous but usually a bit longer (2 – 3 mm, 1/12 – ⅛ in.), and there is a tuft of long hair on either side of the leaf-base (h) of the lower leaves.

Both kinds of crab grass are common in southern Ontario but they also occur sporadically in northern and northwestern Ontario. Both occur in row crops and other fields, waste places, gardens and lawns. Before heading out, they are distinguished by their tapered leaf blades, split sheaths (c), membranous ligules (d, g) with no auricles, more or less hairy leaf sheaths (b) and either hairy or smooth blades. After heading out, the slender fingerlike spikes are distinctive.

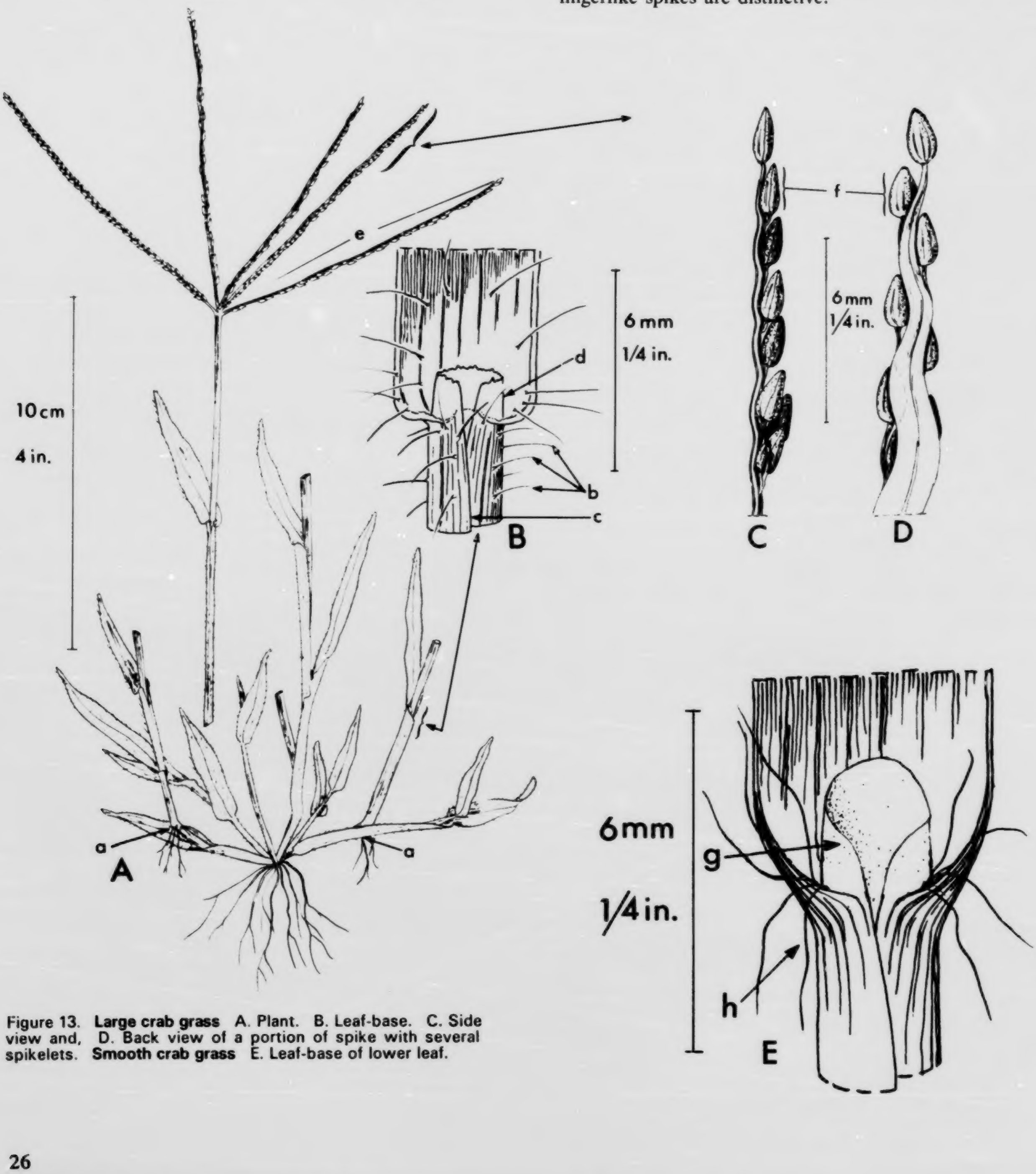


Figure 13. **Large crab grass** A. Plant. B. Leaf-base. C. Side view and, D. Back view of a portion of spike with several spikelets. **Smooth crab grass** E. Leaf-base of lower leaf.

**Witch grass**, *Panicum capillare* L., (Figure 14) [panic capillaire, Capillary, Common witch grass, Hair grass, Old witch grass, Panic grass, Tickle grass, Tumble grass] Annual, reproducing only by seed. Stems 5 – 120 cm (2 in. – 4 ft) high, erect or spreading; leaf blades and leaf sheaths densely hairy, the hair 2 – 3 mm (1/12 – ⅛ in.) long and becoming harsh and prickly as the plant matures; leaf sheath split (B), its margins either separate (a) or overlapping; ligule (b) a dense fringe of hair 1 – 2 mm (1/25 – 1/12 in.) long; inflorescence (C) a large, loose, open, fluffy panicle with numerous, very fine branches and tiny spikelets (d) at the ends of those branches; the much-branched panicle often wider than long and, on small- to medium-sized plants, often making up ½ to ⅔ the total height of the plant. At maturity, the stem breaks easily below the inflorescence and the whole panicle is rolled and tumbled by the wind, dropping seed with every bounce.

Witch grass is very common in fields, waste areas, roadsides, backyards, gardens and occasionally in lawns throughout southern Ontario and sporadically in north and northwestern Ontario. It is distinguished from Fall panicum by its densely hairy leaves and leaf sheaths, very fine, bushy panicle and smaller seeds.

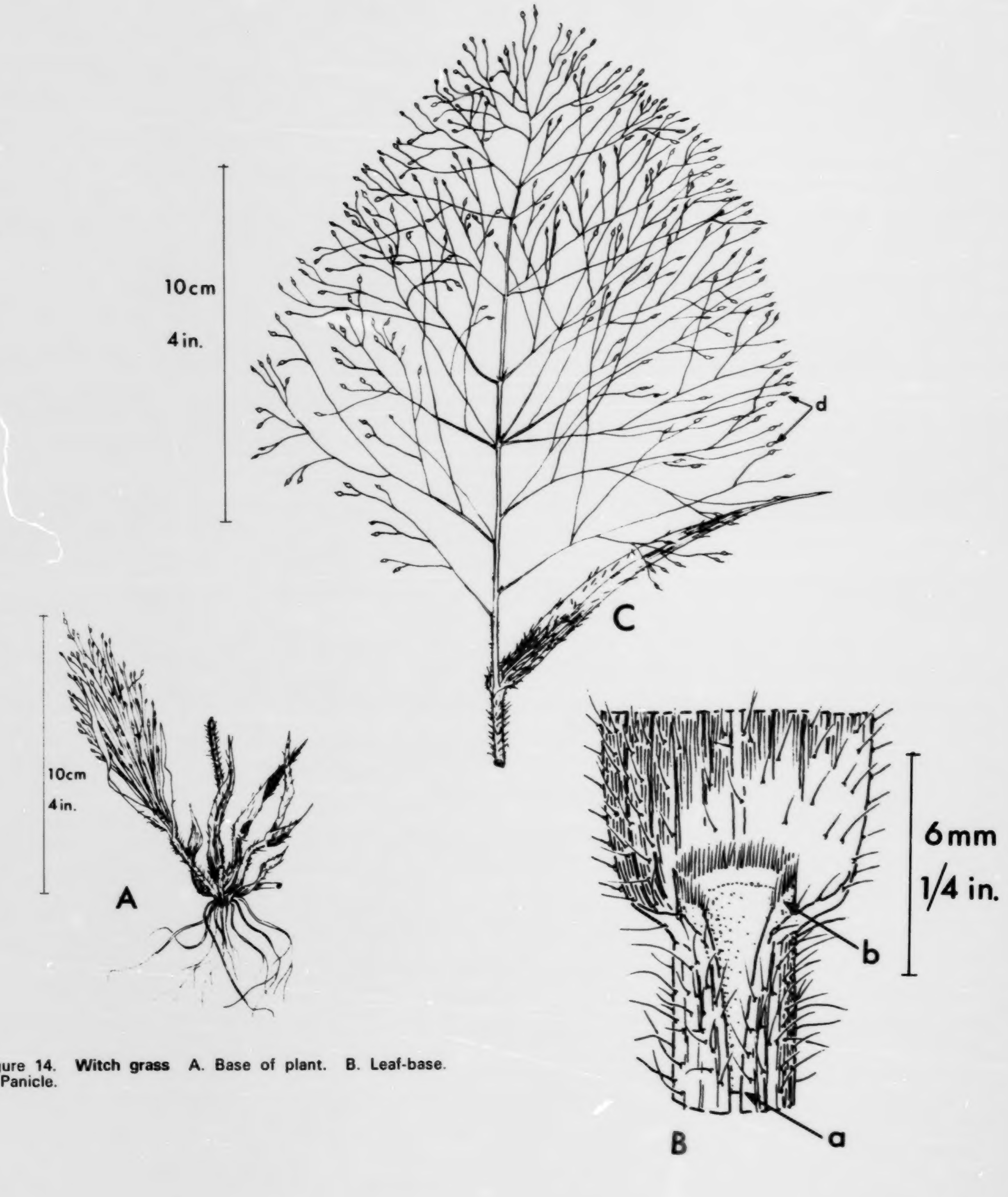
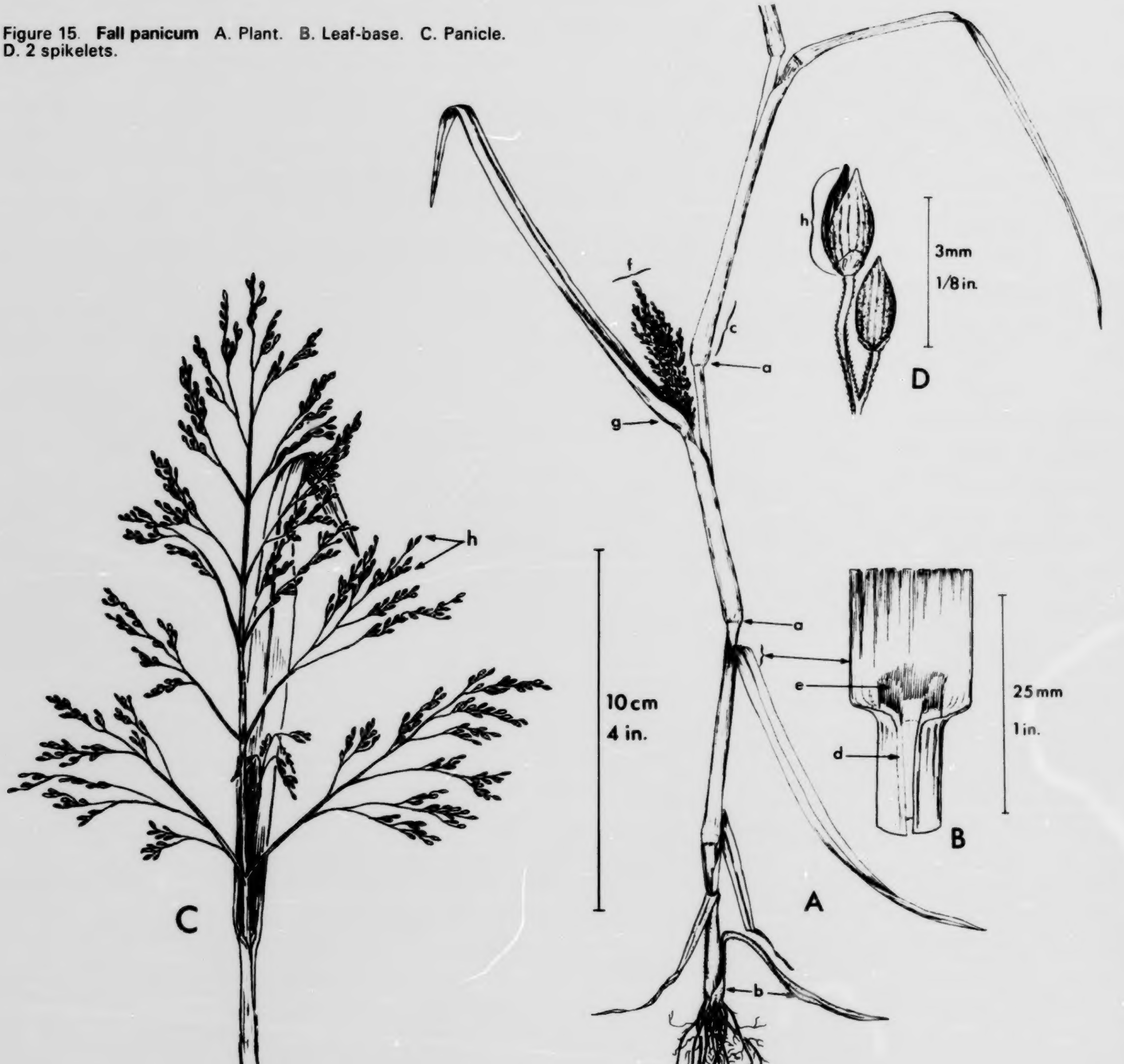


Figure 14. **Witch grass** A. Base of plant. B. Leaf-base. C. Panicle.

**Fall panicum,** *Panicum dichotomiflorum* (L.) Michx., (Figure 15) [panic d'automne, Smooth panicum, Smooth witch grass, Spreading panic grass, Wire grass] Annual, reproducing only by seed. Stems 1 to many from a coarse fibrous root system, 10 –180 cm (4 in. – 6 ft) long, erect or spreading or lying nearly prostrate on the ground; often rooting from nodes in contact with the soil, usually bending in a zigzag manner at each node or joint (a); lower leaf blades and leaf sheaths of very young plants finely hairy (b), blades and leaf sheaths produced higher up the stem usually completely hairless; nodes (a) of stem enlarged and prominent; leaf sheath somewhat inflated (c) or loosely fitting around the stem just above each node; leaf sheaths split (B), their margins (d) very thin, membranous, white or colorless, and separate or overlapping each other; ligule (e) a fringe of hair 1.5 – 3 mm (1/16 – ⅛ in.) long, inflorescence of several much-branched panicles; terminal panicle (C) at the end of each stem large and bushy, 15 – 50 cm (6 – 20 in.) long and almost as wide, the branches thin but quite stiff; panicles on lower branches (f) small, compact, and often remaining partially enclosed (g) by the leaf sheath from which they emerge; spikelets (h) borne singly at the ends of the tiny branches, each containing a single floret ("seed").

Fall panicum is a native plant in eastern North America but has only recently become a weed of significance in cultivated land. It now infests many thousands of acres of prime corn land in the 6 southwestern counties of Ontario and is present in many more farms in all the counties south and west of a line from Hamilton to Grand Bend. Outside this region it is known to occur only in streamside locations along Bear Creek southeast of Ottawa, and in several waste areas in Ottawa city and along the St. Lawrence River. It can be distinguished from Witch grass by its coarser panicle, the zigzag appearance of its longer stems, and the absence of hair on the leaf sheaths and leaf blades in the upper part of the plant.

Figure 15. **Fall panicum** A. Plant. B. Leaf-base. C. Panicle. D. 2 spikelets.



**Barnyard grass**, *Echinochloa crusgalli* (L.) Beauv., (Figure 16) [échinochloa pied-de-coq, Summer grass, Water grass] Annual, reproducing only by seed. Stems erect, spreading or lying horizontally on the ground and bending upwards but rooting from nodes (a) in contact with the soil; stems 5 – 150 cm (2 in. – 5 ft) long, coarse, smooth, usually round in cross-section but occasionally much flattened; leaves 5 – 45 cm (2 – 20 in.) long, 6 – 22 mm (¼ – ¾ in.) broad, deep green or somewhat purplish, hairless or with 1 to 3 solitary hairs near the base of the blade (c); leaf sheaths split with overlapping margins (d); ligule absent (e); inflorescence 5 – 25 cm (2 – 10 in.) long having a central stem with several spreading, nearly erect, thick branches with clusters of spikelets; each spikelet is covered with short stiff hair and may either be awned with a straight or twisted bristle (f) or awnless, containing a single fertile floret ("seed" or "grain") about 3 mm (⅛ in.) long, hard, shiny, pale yellow, and rounded on one surface but flattened on the other.

Barnyard grass is a very widespread and troublesome weed throughout southern Ontario and occurs sporadically in the north and northwest as well. It occurs in cultivated fields, waste places, along roadsides, in gardens and occasionally in lawns, usually being more abundant in moist soil and becoming conspicuous in late summer and fall. It is distinguished from all other weedy grasses in Canada by the complete absence of a ligule (e, and see Figure 3) at the junction of leaf blade and leaf sheath, and by its rather coarse, chunky inflorescence.

A strain of Barnyard grass, that was cultivated under the name "Billion dollar grass", can occasionally be found in southwestern Ontario and is recognized by its erect stature and its dark purple, almost black inflorescence.

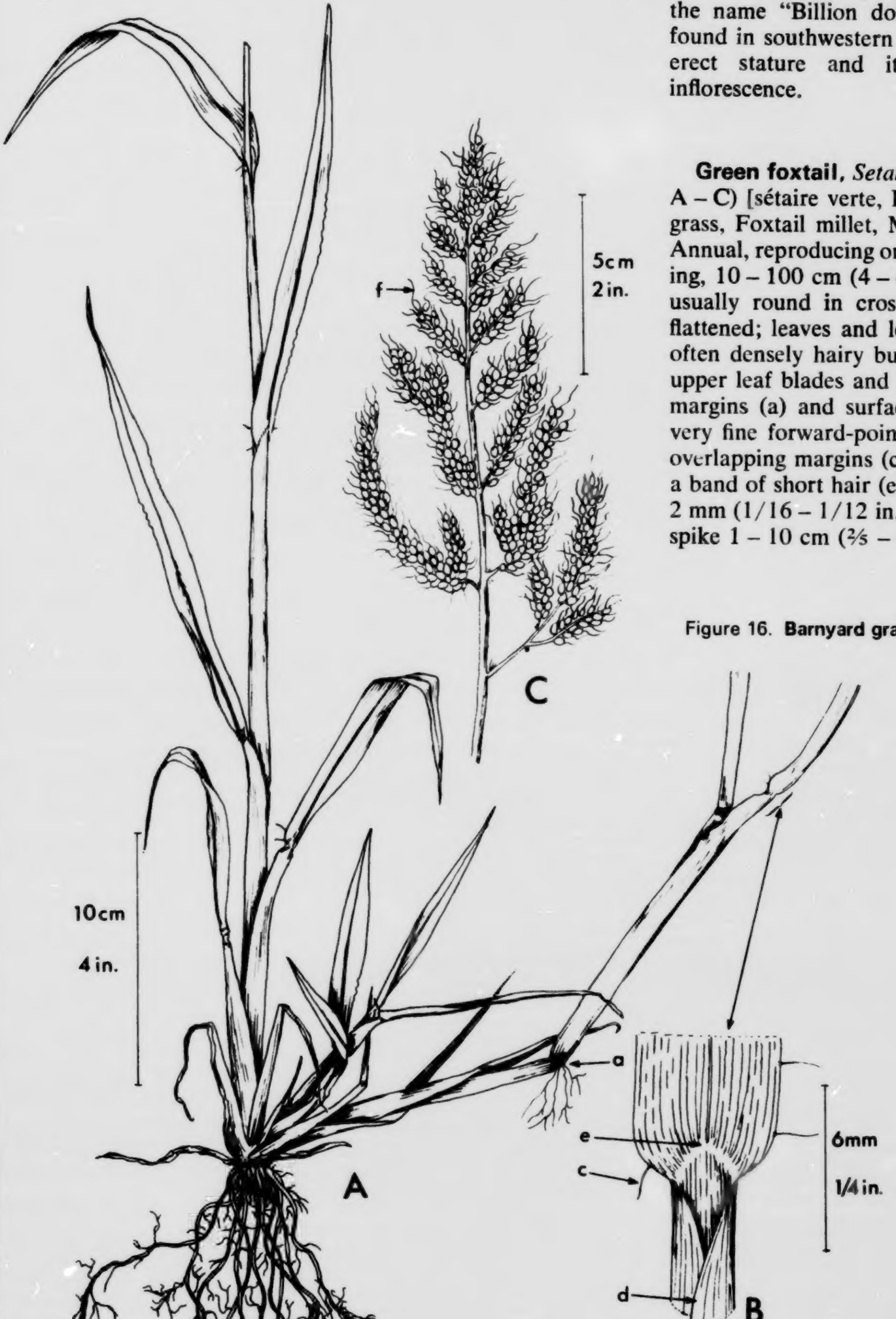


Figure 16. **Barnyard grass** A. Plant. B. Leaf-base. C. Panicle.

**Green foxtail**, *Setaria viridis* (L.) Beauv., (Figure 17 A – C) [sétaire verte, Bottle brush, Bottle grass, Bristle grass, Foxtail millet, Millet, Pigeon grass, Wild millet] Annual, reproducing only by seed. Stems erect or spreading, 10 – 100 cm (4 – 40 in.) tall or occasionally taller, usually round in cross-section but occasionally much flattened; leaves and leaf sheaths of very young plants often densely hairy but with upward-pointing hair, but upper leaf blades and leaf sheaths mostly without hair; margins (a) and surface (b) of leaf blades rough with very fine forward-pointing barbs; leaf sheath split with overlapping margins (c), both of which are fringed with a band of short hair (e); ligule (d) a fringe of hair 1.5 – 2 mm (1/16 – 1/12 in.) long; inflorescence a very dense spike 1 – 10 cm (⅖ – 4 in.) long, sometimes with short roundish branches, and covered with short green to slightly purplish bristles; the bristles have microscopic forward-pointing barbs that allow the seed head to be dragged downwards but not pushed upwards over the skin or a rough surface. Each spikelet consists of a single fertile floret ("seed" or "grain"), is rounded on one surface but flattened on the other, finely cross-ridged, and yellowish-green with brownish spots.

Green foxtail is very common and widespread throughout all agricultural regions of Ontario. It grows well in all soil textures and occurs in cultivated lands, waste places, roadsides, gardens and occasionally lawns. It is distinguished from Yellow foxtail by its green or purple bristles, the absence of long, kinky hair on the upper surface of the leaf blade near the stem (see Figure 18), the presence of a fringe of hair (e) on both margins (c) of the leaf sheath, and by its somewhat smaller grains or seeds. It is distinguished from Bristly foxtail by its denser, more continuous spike whose bristles do not cling when sliding the fingers upwards on it.

**Giant foxtail,** *Setaria faberii* Herrm., (not illustrated) [sétaire géante] is not known to occur anywhere in Canada at present. It resembles Green foxtail but has usually larger, somewhat curled or nodding spikes, and the upper surface of all leaf blades is covered by dense fine hair which can be seen with the naked eye if the leaf is rolled backwards over the finger and viewed against the light.

**Bristly foxtail,** *Setaria verticillata* (L.) Beauv., (Figure 17 D – F) [sétaire verticillée, Bristle grass, Catch grass, Garden grass], annual, reproducing only by seed. Stems, leaves and general habit of growth very similar to those of Green foxtail. The spike (E) is "interrupted", the clusters of spikelets being somewhat separated from one another along the central stalk (f). The greenish bristles (g) are covered with tiny, sharp, backward-pointing barbs (h) and these cause the whole spike to cling to the skin, hair, other spikes and, indeed, any rough surface (hence the name "bristly").

Bristly foxtail is less abundant than Green foxtail, occurring in scattered localities throughout the southern part of Ontario but apparently not reported in the north or northwest. Although it is usually found in wasteland and gardens, its occurrence in cultivated fields is on the increase, especially in the southwestern part of the province.

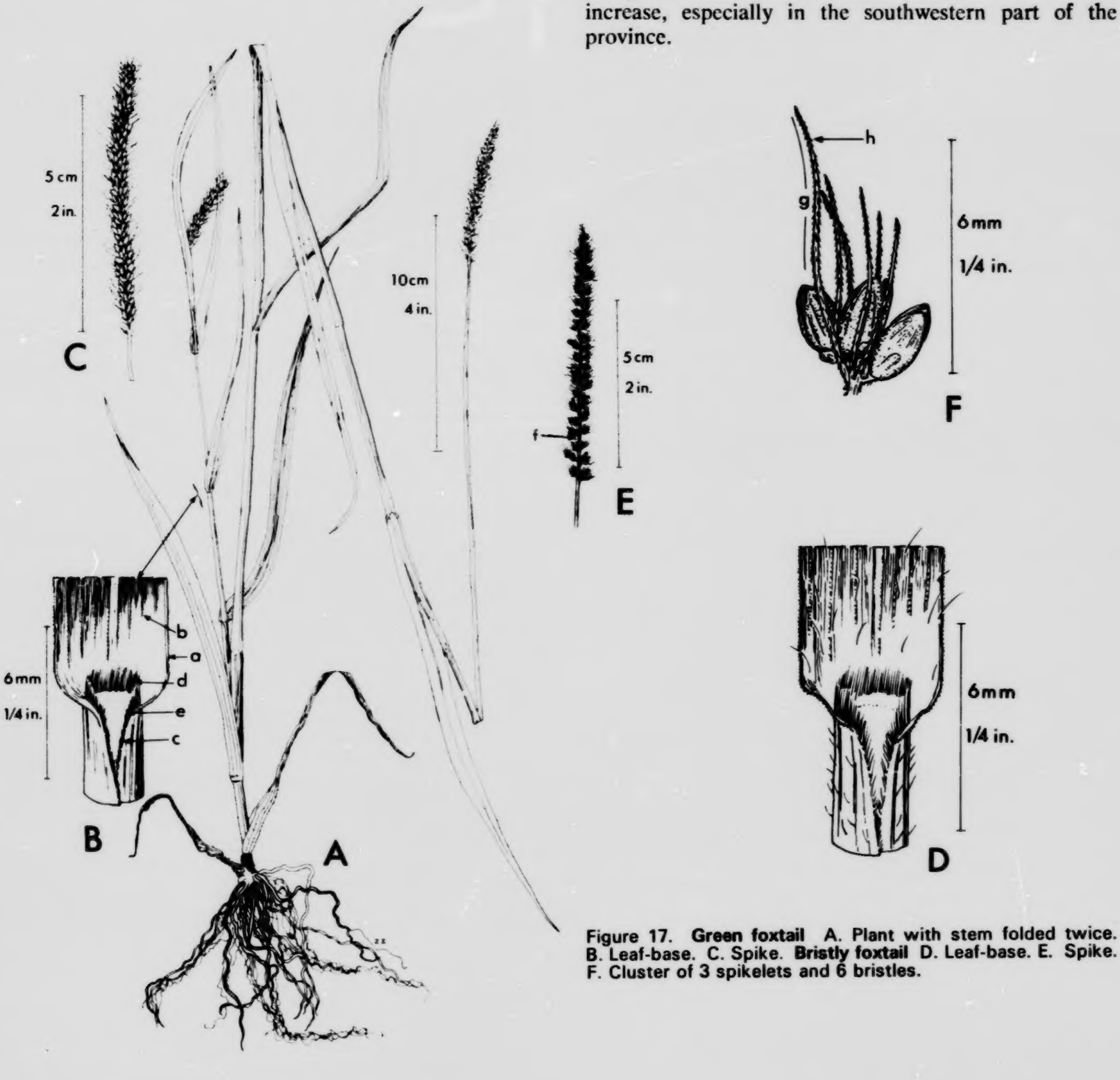


Figure 17. **Green foxtail** A. Plant with stem folded twice. B. Leaf-base. C. Spike. **Bristly foxtail** D. Leaf-base. E. Spike. F. Cluster of 3 spikelets and 6 bristles.

**Yellow foxtail**, *Setaria glauca* (L.) Beauv., (Figure 18) [sétaire glauque, Bottle brush, Bottle grass, Bristle grass, Millet, Pigeon grass, Wild millet, *Setaria lutescens* (Weigel) Hubb.] Annual, reproducing only by seed. In general appearance similar to Green foxtail but distinguished from it and all other grasses by having a few, prominent, silky, kinky hairs (a) (3 – 10 mm, ⅛ – ⅖ in. long) on the upper surface of the leaf blade just near the stem; ligule (b) a fringe of hair; leaf sheaths split, their margins (c) smooth, green or slightly membranous and transparent. Inflorescence a spike (C) 2 – 10 cm (⅘ – 4 in.) long, covered with numerous, yellow to orange bristles (d) with forward-pointing barbs. Spikelets ("seeds" or "grains") slightly larger than Green foxtail, more prominently cross-ridged, and yellowish or straw-colored.

Yellow foxtail occurs throughout the agricultural regions of Ontario, having essentially the same distribution as Green foxtail but often being less abundant.

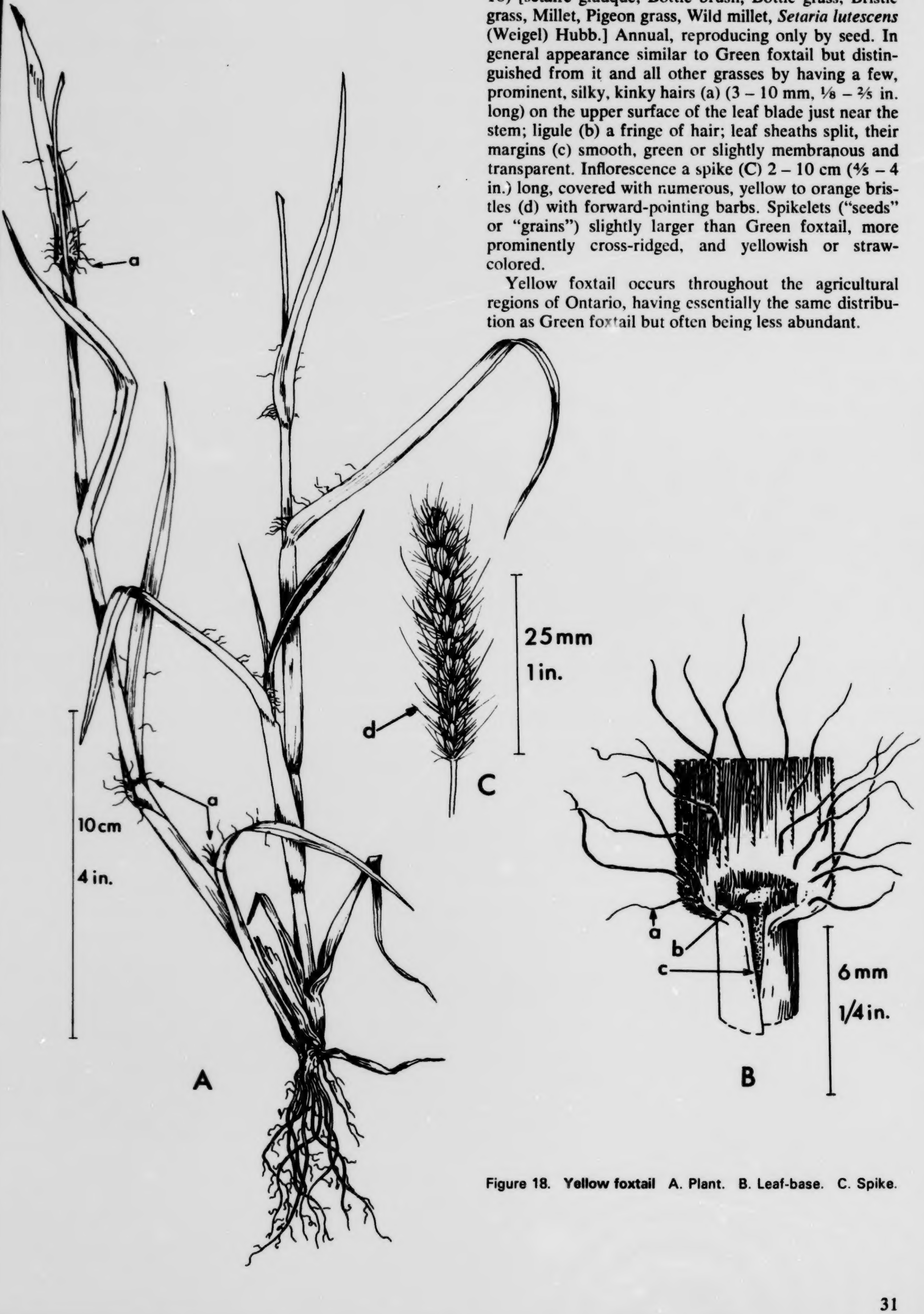


Figure 18. Yellow foxtail A. Plant. B. Leaf-base. C. Spike.

**Long-spined sandbur,** *Cenchrus longispinus* (Hack.) Fern., (Figure 19) [cenchrus épineux, Bur grass] Annual, reproducing only by seed. Stems mostly 10 – 60 cm (4 – 24 in.) long, erect or spreading or lying on the ground; leaves flat or margins inrolled (a), usually constricted and partially twisted (b) at the junction with the leaf sheaths, 2 – 12 cm (1 – 5 in.) long, mostly hairless but rough in one direction; leaf sheaths split with overlapping margins (c); these margins on young plants membranous and without hair, but on upper leaf sheaths of older stems membranous and usually also with few to many hairs (d) 1 – 2 mm (1/25 – 1/12 in.) long; ligule a row of short hair (e) mostly less than 1 mm (1/25 in.) long; there is also a tuft of short and long (2 – 3 mm, 1/12 – 1/8 in.) hair on each side (f) of the collar at the junction between blade and sheath; inflorescence a group of spiny burs at the end of each stem; each bur (C) 4 – 6 mm (⅙ – ¼ in.) long, containing 1 or 2 "seeds", and covered with extremely sharp spines (g) with backward-pointing barb (h) which anchor into skin, etc; the whole bur breakin off when mature.

Long-spined sandbur is a native grass in areas of sand soil throughout southern Ontario. Though normall found along sandy beaches, sand dunes, riverbanks an roadsides, it is becoming a problem in tobacco fields an other row crops on sandy soils. Once the burs hav emerged, Long-spined sandbur cannot be confused wit any other grass in Ontario. Younger plants can be distinguished from most other grasses by the split sheat with membranous margins (c), and usually some hair o the margin, together with the hairy ligule (e) and the tuft of long hair (f) on either side at the junction betwee blade and sheath.

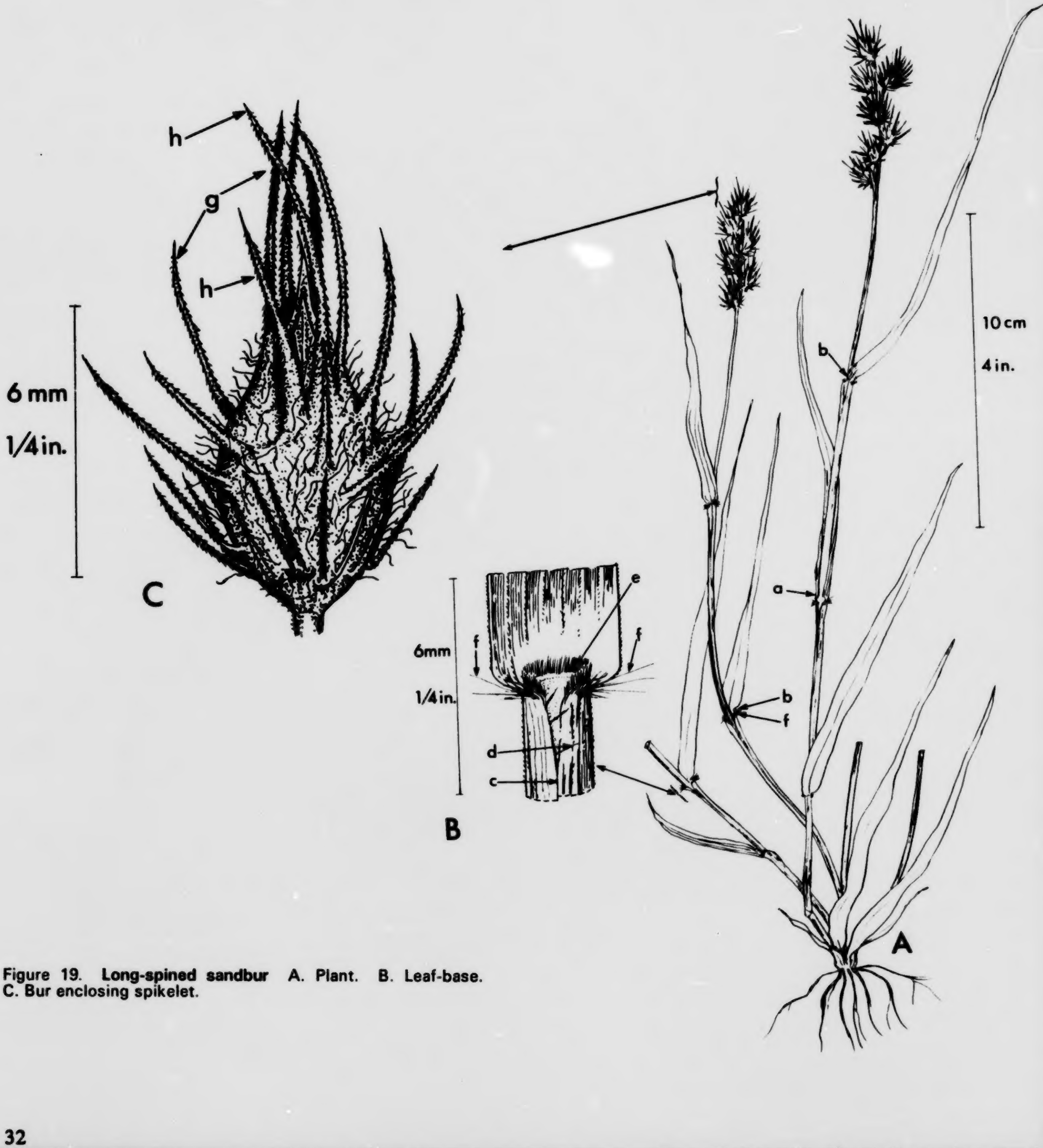


Figure 19. **Long-spined sandbur** A. Plant. B. Leaf-base. C. Bur enclosing spikelet.

**Johnson grass,** *Sorghum halepense* (L.) Pers., (Figure 20) [sorgho d'Alep] Perennial, reproducing by seed and by large, coarse underground stems (rhizomes), but overwintering only by seed in Ontario. Stems 50 – 210 cm (2 – 7 ft) tall, 5 – 20 mm (⅕ – ⅘ in.) diameter, smooth and stiff or wiry; leaves 20 – 60 cm (8 – 24 in.) long, 1 – 2 cm (⅖ – ⅘ in.) wide, bright green, and smooth; leaf sheaths split with smooth overlapping margins (a); ligule (b) membranous, 2 – 5 mm (1/12 –⅕ in.) long; often with purplish blotches on the sides of the collar (junction between leaf blade and leaf sheath); rhizomes thick and fleshy, as much as 1 cm (⅖ in.) diameter and up to 1 m (40 in.) long, with nodes (c) and internodes, frequently rooting from the nodes, and the internodes partially covered with brown scale-like sheaths (d); inflorescence up to 50 cm (2 ft) long, with whorls of upright branches; at first compact (C), later spreading and open; spikelets arranged in pairs at each node along the thin branches, 1 member of the pair is sterile (non-seed bearing) (e), rather dull in texture and has a short stalk (f); the second member (g) of each pair is fertile (contains the grain or "seed"), rather plump, about 5 mm (⅕ in.) long by 2.5 mm (1/10 in.) wide, does not have a stalk, and may have a twisted awn (h) 1 – 1.5 cm (⅖ – ⅗ in.) long.

Johnson grass is presently known to occur in only five localities in Ontario; near Essex, Dresden, Iona, Waterloo and Markham.

Young plants of Johnson grass might be mistaken for very thin plants of corn, Sudan grass, or an annual grain sorghum. Older plants can be distinguished by the presence of coarse, whitish, rope-like, branching rhizomes (horizontal underground stems) about 1 cm (⅖ in.) diameter in late autumn but these apparently are killed by Ontario winters.

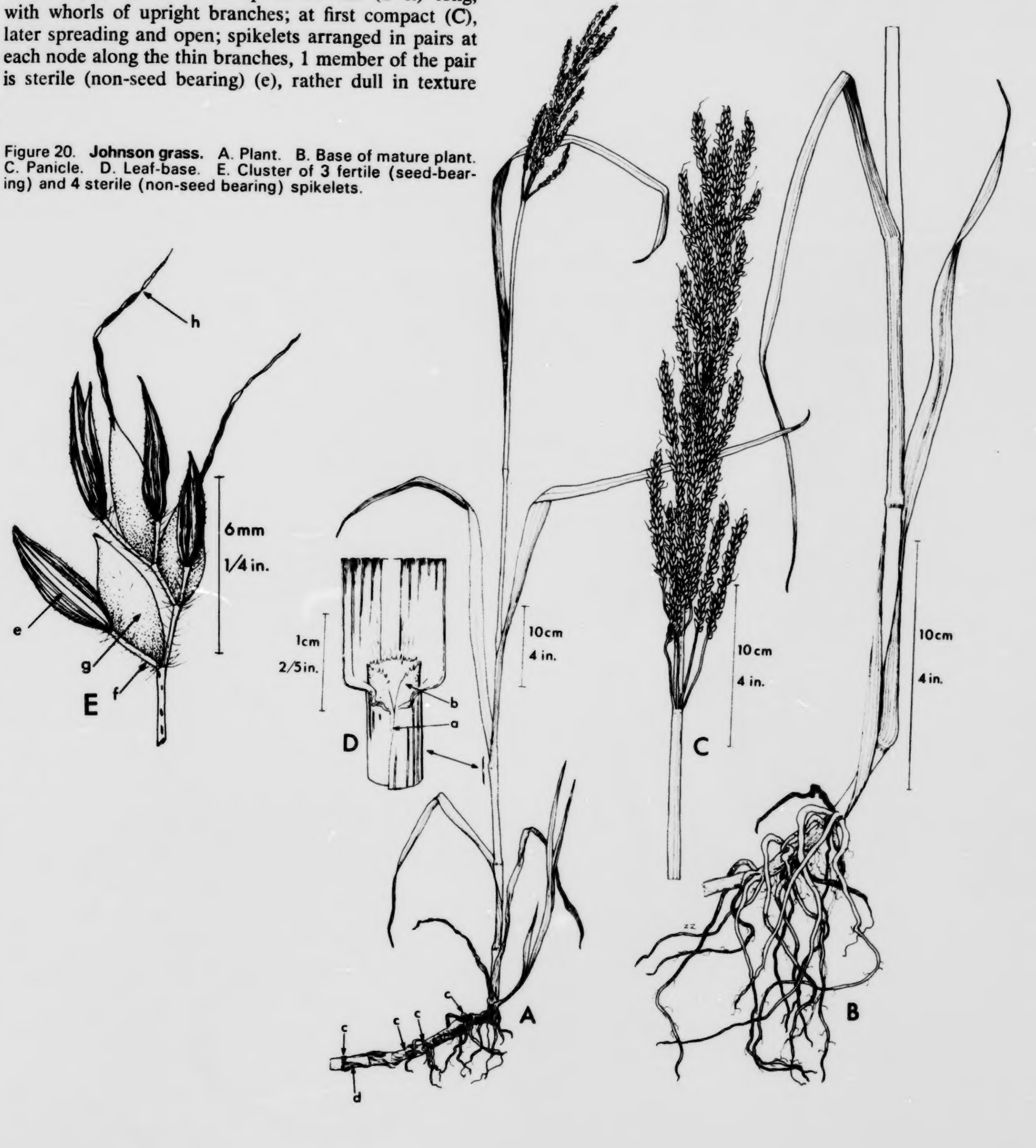


Figure 20. **Johnson grass.** A. Plant. B. Base of mature plant. C. Panicle. D. Leaf-base. E. Cluster of 3 fertile (seed-bearing) and 4 sterile (non-seed bearing) spikelets.

# SEDGE FAMILY (Cyperaceae)

**Yellow nut sedge,** *Cyperus esculentus* L., (Figure 21) [souchet comestible, Chufa, Earth almond, Ground almond, Northern nut grass, Nut grass, Rush nut, Yellow nut grass] Perennial, reproducing by seed and by underground stems (rhizomes) and tubers. The underground system is a mixture of long, thin, wiry rhizomes 5 – 20 cm (2 – 8 in.) long or longer, and a mass of fine fibrous roots. Rhizomes are light brown to whitish, have nodes (a) and internodes (b) with short, dark brown, dry scalelike sheaths; tubers (c) produced at the tips of some rhizomes, dark brown, somewhat spindled-shaped, 5 – 20 mm (⅕ – ⅘ in.) long and usually narrower, edible with a taste somewhat suggestive of almonds; stems 10 – 90 cm (4 in. – 3 ft) high, distinctly triangular in cross-section (B, C) and usually less than 1 cm (⅖ in.) thick; leaves numerous at the base of the plant and sparse up the stem except for a cluster of usually 3 or 4 at the base of the inflorescence; leaf arrangement 3-ranked, that is, the leaves pointing outwards in 3 directions from the stem (B, C); leaf sheath closed forming a 3-sided cylinder around the stem; leaf blades grasslike, long (often longer than the stem) and narrow, 3 – 10 mm (⅛ – ⅖ in.) wide, flat or somewhat folded, light green to yellowish-green; inflorescence an umbrellalike cluster of yellowish to brownish branches at the tip of the stem; spikelets (containing the seeds) long, narrow, closely arranged along slender secondary branches.

Yellow nut sedge is native on moist, sandy soils throughout much of North America. It is common in southern Ontario, frequently infesting moist areas of cultivated fields, pastures, roadsides, gardens and lawns. It is easily distinguished from all grasses by its triangular stem (B, C) and slender, tuber-bearing (c) rhizomes. Several other species of nut sedge also occur in Ontario but this is the most troublesome one and the most likely to occur in cultivated land.

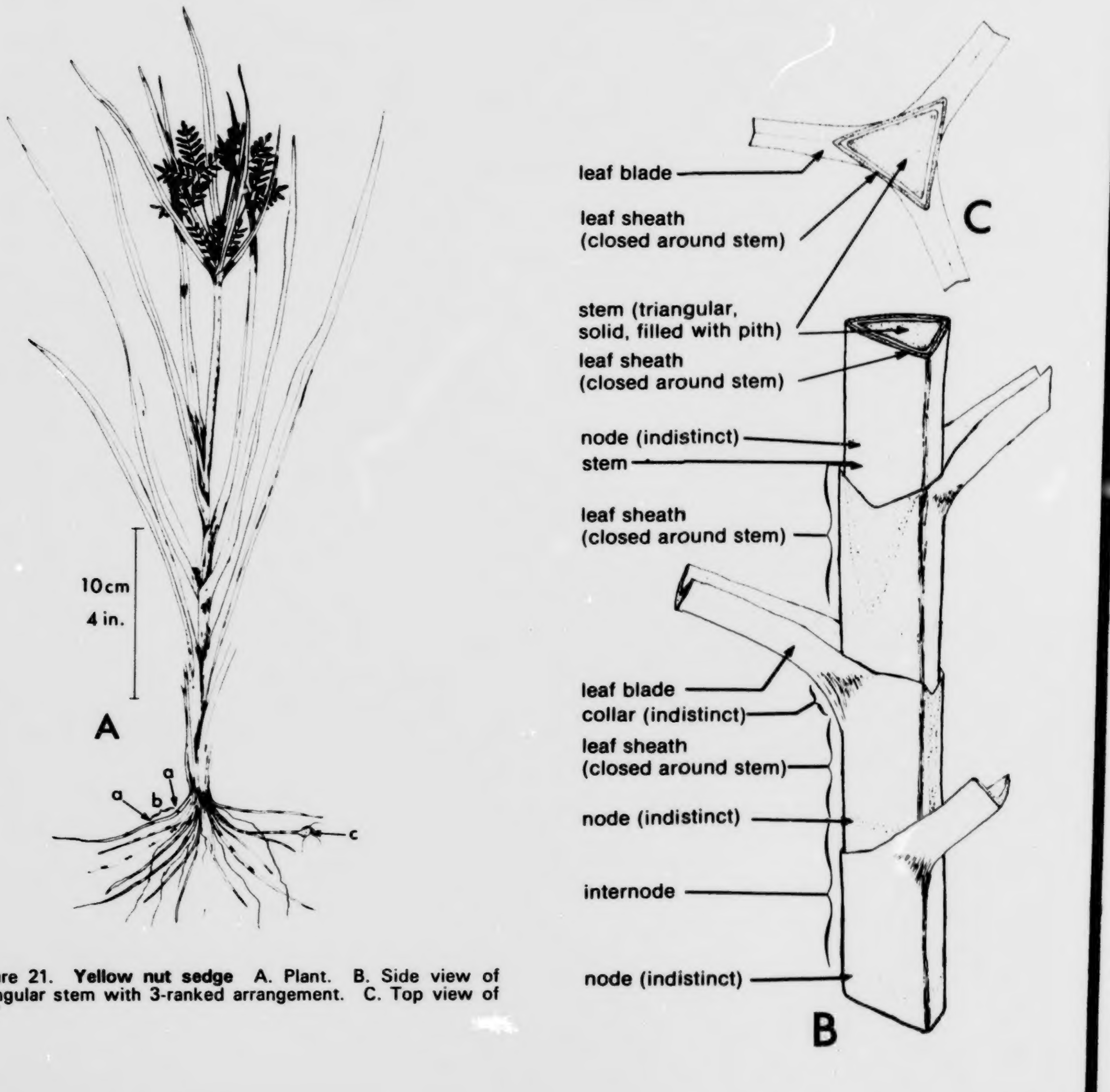

10cm
4 in.
A
a
b
a
c
leaf blade
leaf sheath
(closed around stem)
C
stem (triangular,
solid, filled with pith)
leaf sheath
(closed around stem)
node (indistinct)
stem
leaf sheath
(closed around stem)
leaf blade
collar (indistinct)
leaf sheath
(closed around stem)
node (indistinct)
internode
node (indistinct)
B

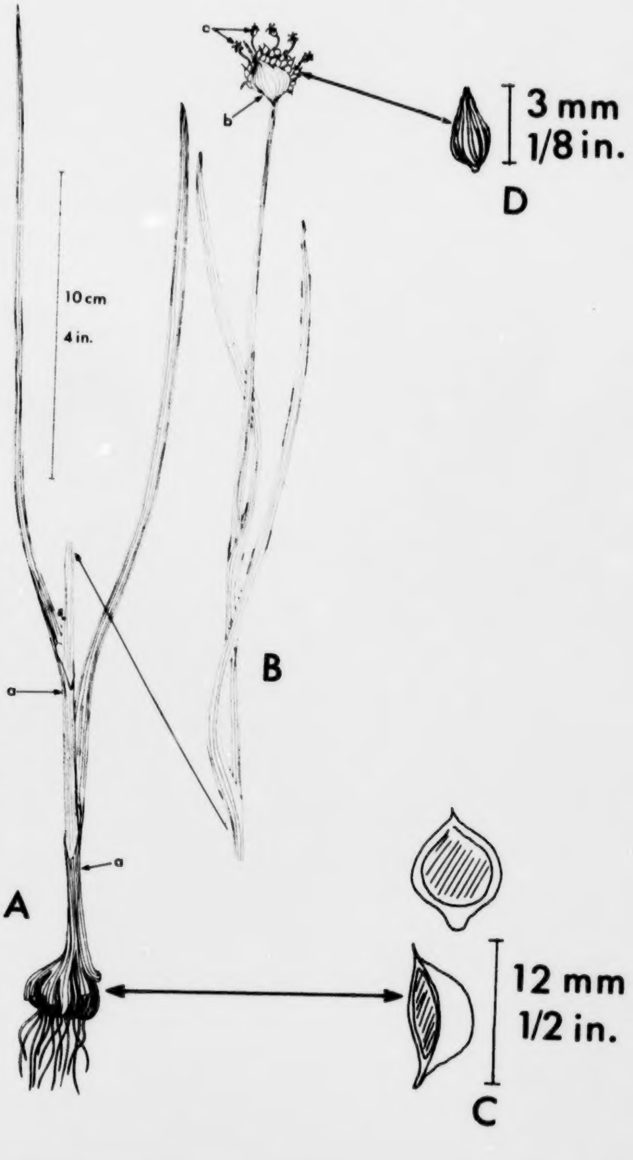
Figure 21. **Yellow nut sedge** A. Plant. B. Side view of triangular stem with 3-ranked arrangement. C. Top view of "B."

# LILY FAMILY (Liliaceae)

**Wild garlic**, *Allium vineale* L., (Figure 22, Plate 4) [ail des vignes, Field garlic, Scallions, Wild onion] Perennial, reproducing by seed and by 3 kinds of bulbs. Young plants very grasslike in appearance with erect, slender, rounded or flattened, smooth-textured leaves; flowering stems erect, mostly unbranched, 30 - 100 cm (12 – 40 in.) high, round, solid or sometimes hollow; stem leaves with a tubular sheath (a) and long slender blades; the blades channeled or flattened near the base, thicker and nearly round towards the tip; flowers in head-like clusters (umbels) at the tip of the stem, each cluster at first surrounded by a papery bract (b) or spathe; each flower (c) with 6 small petals, greenish to white, pink or purplish-red, 6 stamens and 1 pistil, but usually most or all flowers replaced by small bulblets (D); bulblets about 3 – 5 mm (⅛ – ⅕ in.) long and closely resembling but much smaller than the bulbs normally produced in the base of the plant. Base of plant usually producing 2 kinds of bulbs, a soft-shelled bulb that is teardrop-shaped, usually 8 – 17 mm (⅓ – ⅔ in.) long and white, and hard-shelled bulbs (C) which are light brownish, about the same size but distinctly flattened on 1 side and with a thick, hard shell. The whole plant has a very strong garlic odor. The flower or bulblet heads are produced during July and August and when growing in fields of wheat, oats or barley, are harvested with the grain. They shatter readily into individual bulblets that cannot easily be separated from the cereal grain because of their size and shape. Wild garlic occurs only in the Niagara peninsula of southern Ontario, growing in fields, vineyards, roadsides and edges of woods.

Other kinds of Wild onion also grow in Ontario but their aerial bulblets, if produced at all, are two to three times larger than those of Wild garlic, and hard-shelled bulbs are rarely produced at the base of these plants.

Figure 22. **Wild garlic** A. Base of plant. B. Top of plant. C. Hard-shelled bulbs. D. Aerial bulblet.



# BUCKWHEAT or SMARTWEED FAMILY (Polygonaceae)

**Sheep sorrel**, *Rumex acetosella* L., (Figure 23, Plate 8) [petite oseille, Field sorrel, Red sorrel] Perennial, reproducing by seed and by spreading horizontal roots (a). These produce whitish buds (b) which grow into leafy aboveground shoots and result in very dense patches. The plant may also grow as an annual: germinating from seed, flowering, producing a new crop of seed and dying, all in one growing season. Stems 10 – 60 cm (4 – 24 in.) high, slender, tough and wiry; leaves alternate (1 per node), variable in size and shape; lower leaves long-stalked, usually spade-shaped with a pair of slender lobes near the base of the blade, but occasionally very slender and without any lobes; middle leaves short-stalked and nearly always with a lateral lobe (f) on each side; upper leaves stalkless and usually without lobes; leaf ocrea (a thin membranous sheath arising with the leafstalk) (c) at each node (d) of the stem, colorless or faintly greenish-yellow, quite ragged (e) on older stems; flowers small, clustered in whorls in a branching inflorescence; plants unisexual so all flowers on one plant are either female (seed-producing) or male (pollen-producing); female flowers greenish, male flowers yellowish, the whole plant often with a reddish-green to brownish cast; seeds (tiny fruits) about 1.5 mm (1/16 in.) long, triangular or 3-sided in cross-section, smooth, shiny, and reddish-brown to golden-brown.

Sheep sorrel occurs throughout Ontario but is more common in the southern parts of the province in pastures, meadows, waste areas and roadsides, rarely persisting in cultivated fields. It is common in sandy and gravelly soils, especially in areas which are so low in fertility that they do not adequately support other kinds of plants.

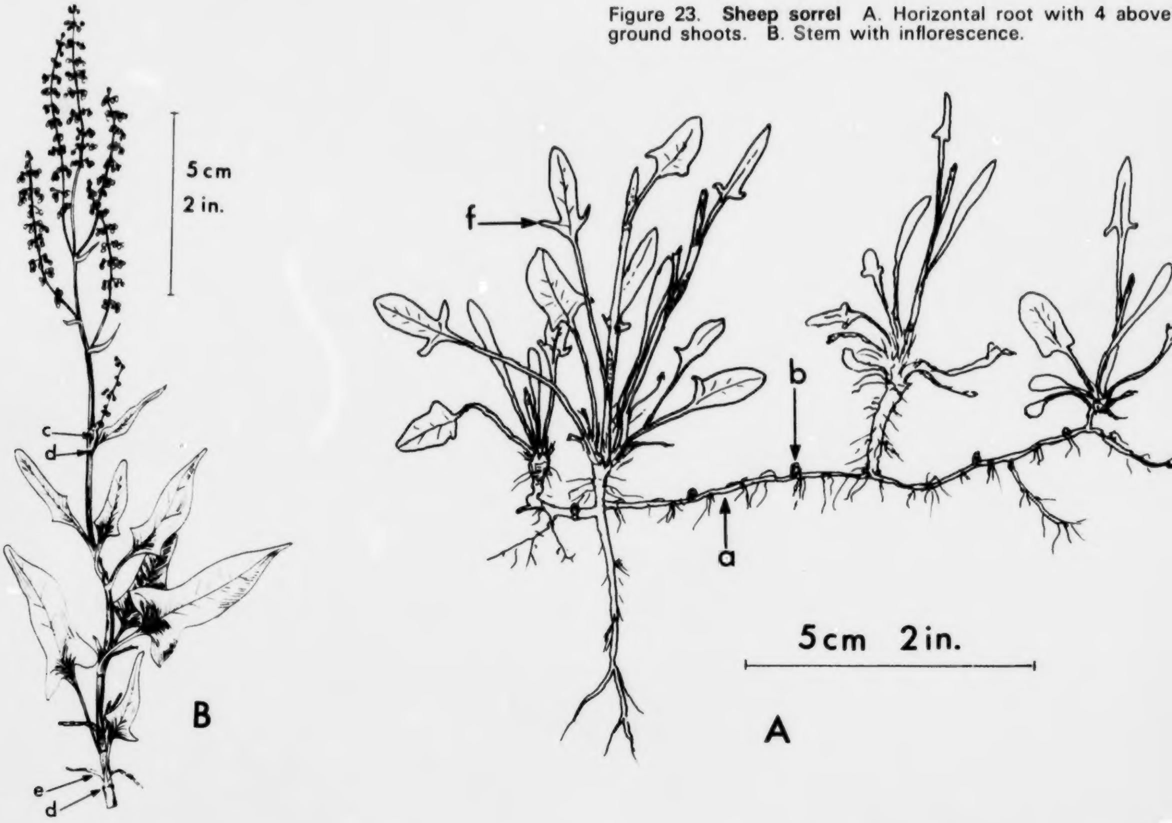


Figure 23. **Sheep sorrel** A. Horizontal root with 4 aboveground shoots. B. Stem with inflorescence.

**Curled dock**, *Rumex crispus* L., (Figure 24, Plate 9) [patience crépue, Curly dock, Narrow-leaved dock, Sour dock, Yellow dock] Perennial, spreading only by seed. Stems erect, 1 m (40 in.) or taller, from a thick, yellowish, deeply penetrating, simple or branching taproot, leaf shape variable: cotyledons (first 2 seed leaves) very narrow (A, a), dull green and mealy-surfaced; first true leaves (B) roundish in outline; rosette leaves long, 10 – 30 cm (4 – 12 in.) or longer, narrow, with rounded or tapered bases, very wavy-margined, curled or "crisped", sour-tasting; stem leaves alternate (1 per node), similar but smaller upwards, base of each leafstalk flattened, expanded and somewhat encircling the stem at the node (c), and with a prominent ocrea (membranous sheath) (b) up to 5 cm (2 in.) long which becomes brown and papery with age; the lower stem leaves dying as the plant matures (d); flowers small, greenish, clustered in whorls around the branches of the terminal inflorescence (E), becoming at maturity a thick branched mass of light brown to dark brown "fruits"; each fruit with 3 tiny sepals (e) and 3 large, winglike, smooth-margined, papery sepals or "valves" (f), with 1 egg-shaped, corky bump (tubercle or "grain") (g) on the back of each sepal and enclosing a small, shiny, reddish-brown seed which is triangular in cross-section, pointed at both ends and about 2 mm (1/12 in.) long.

Curled dock is a common weed of moist situations such as meadows, low pastures, riversides, roadsides (Plate 9), depressions in cultivated fields, and occasionally on sandy uplands throughout Ontario. It is distinguished from similar plants by its long narrow leaves with curled and wavy margins and the base of the blades rounded or narrowed towards the leafstalks, the 3 wing-like sepals (valves) (f) of the fruit with relatively smooth margins (no teeth) and each one bearing an enlarged corky tubercle (g).

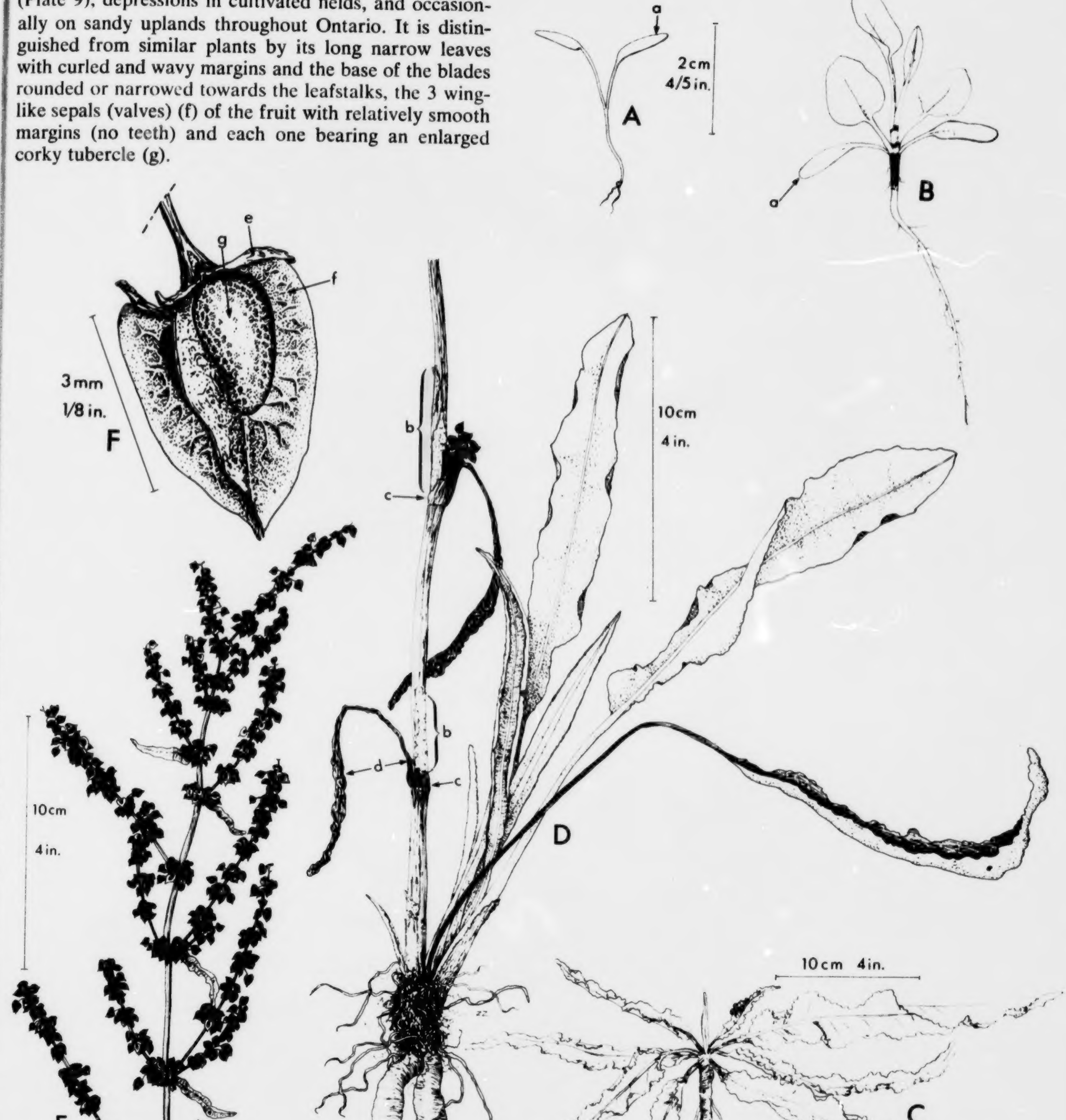


Figure 24. **Curled dock** A. Seedling in cotyledon stage. B. Seedling in 4th true-leaf stage. C. Rosette. D. Base of mature plant. E. Inflorescence. F. Single, 3- winged "fruit."

**Broad-leaved dock**, *Rumex obtusifolius* L., (Figure 25) [patience a feuilles obtuses, Bitter dock, Blunt-leaved dock, Red-veined dock] Perennial, reproducing only by seed. Very similar to Curled dock but cotyledons (seed leaves) (a) ⅓ as wide as long; first few true leaves either round in outline or with heart-shaped bases (b); rosette and stem leaves broad with rounded or more usually heart-shaped bases; their margins flat or somewhat wavy up and down but never strongly curled or wavy-margined; veins green or somewhat reddish, prominent and somewhat white-hairy on the undersurface; ocrea (membranous sheath) (d) surrounding stem above node (c) up to 5 cm (2 in.) long, becoming brown and papery with age; inflorescence similar to, but thicker than, Curled dock; the 3-winglike inner sepals (e) of each "fruit" with several irregular teeth (f) along the margins, but only 1 of the 3 sepals bearing an egg-shaped corky enlargement (tubercle) (g) on its back.

Broad-leaved dock occurs in moist situations throughout southern Ontario but is seen only scarcely in the north and northwest. It occurs along streams, meadows, wet roadside ditches, moist waste areas, and in depressional areas in cultivated land. It is distinguished from similar plants by its broad leaves with heart-shaped bases and the prominently toothed margins (f) of the 3 winglike sepals (valves) (e) of the fruit, only 1 of which usually develops an enlarged, egg-shaped corky or fleshy tubercle (g) on its outer surface.

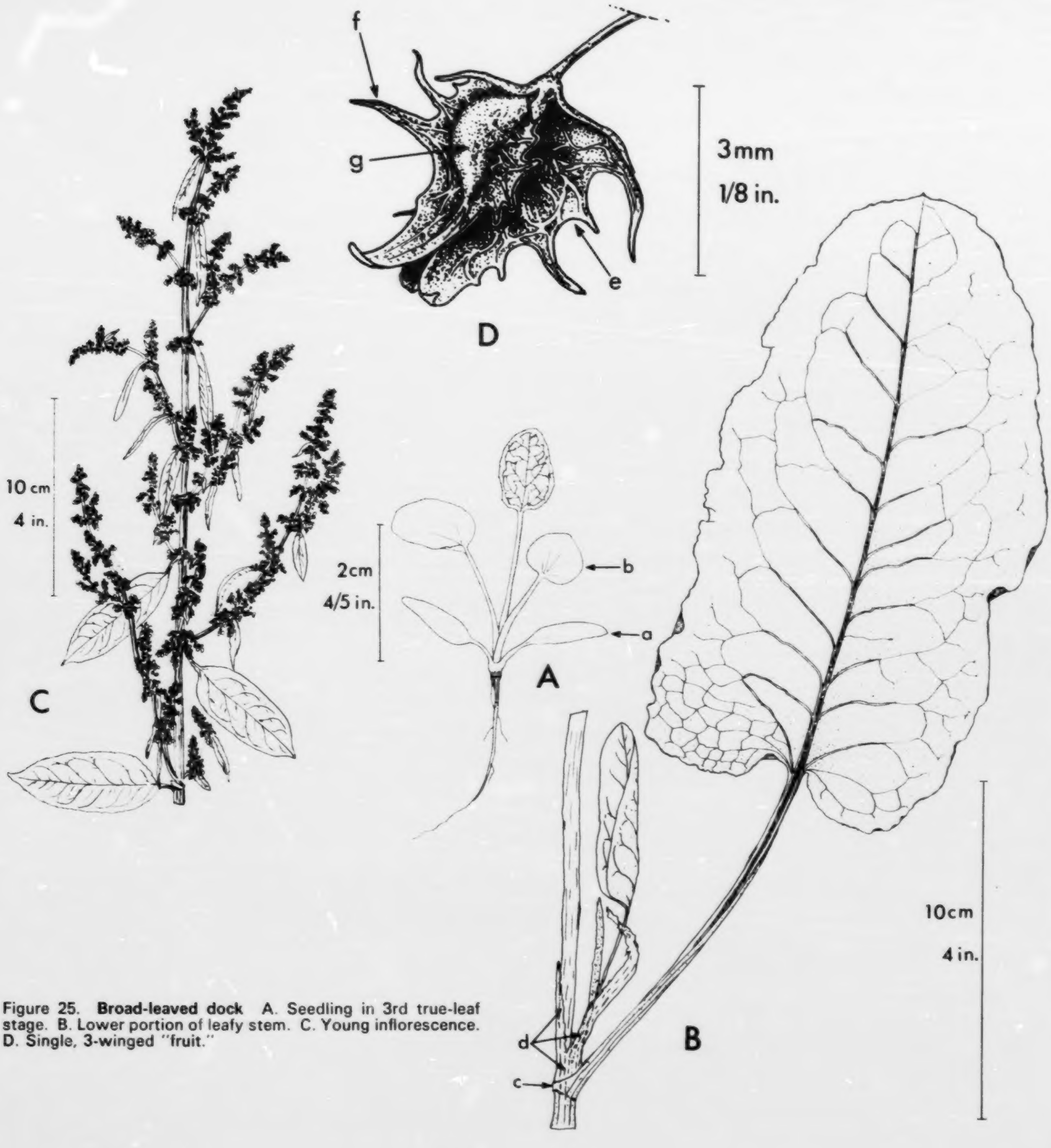


Figure 25. **Broad-leaved dock** A. Seedling in 3rd true-leaf stage. B. Lower portion of leafy stem. C. Young inflorescence. D. Single, 3-winged "fruit."

**Prostrate knotweed**, *Polygonum aviculare* L., (Figure 26) [renouée des oiseaux, Doorweed, Knot-grass, Mat-grass, Road-spread] Annual, reproducing only by seed. Stems prostrate or semierect from a thin, tough, wiry, deeply penetrating taproot; growth habit variable: in open sunny situations stems fully prostrate, to 1 m (40 in.) or longer, or main stems prostrate with short, upturned branches, but in partly shaded situations, such as a grain crop, stems are nearly erect to 30 or 40 cm (12 – 16 in.) high; stem nodes (joints) (a) distinct, thickened, and surrounded by a thin, papery ocrea (membranous sheath) (b); leaves alternate (1 per node), up to 5 cm (2 in.) long but usually much shorter, their width about ⅓ – ⅕ of their length, usually broadest near or past the middle, and narrower towards both ends; flowers small and inconspicuous, 2 mm (1/12 in.) or less long, without petals but with 5 tiny greenish, pinkish or purplish sepals (c), produced in axils of leaves and partially enclosed in the ocrea; mature "seed" (d) more or less enclosed by the drying sepals, slightly rough, dull brown, triangular in cross-section and about 2 mm (1/12 in.) long.

Prostrate knotweed occurs throughout Ontario in areas of moderately heavy foot- or wheel-traffic where the soils may be low in fertility and so heavily compacted that other plants are unable to survive. It is one of the most common weeds along roadsides, edges of or cracks in sidewalks and pavement, and heavy-traffic areas in lawns. It also occurs in gardens and cultivated fields where it tends to have a more erect habit of growth.

Prostrate knotweed, an introduction from Eurasia, is similar to several, closely related, native species of knotweed. One of the more common of these is **Striate knotweed**, *Polygonum achoreum* Blake, (not illustrated) [renouée coriace, Erect knotweed] This plant sometimes occurs in similar situations, especially roadsides, and is distinguished from Prostrate knotweed by coarser, more erect stems, broader and more rounded leaves, and by its triangular seeds being smooth and olive-colored. All knotweeds have wiry stems with swollen nodes, membranous ocrea (b), and tiny flowers arising inside the ocrea in leaf axils.

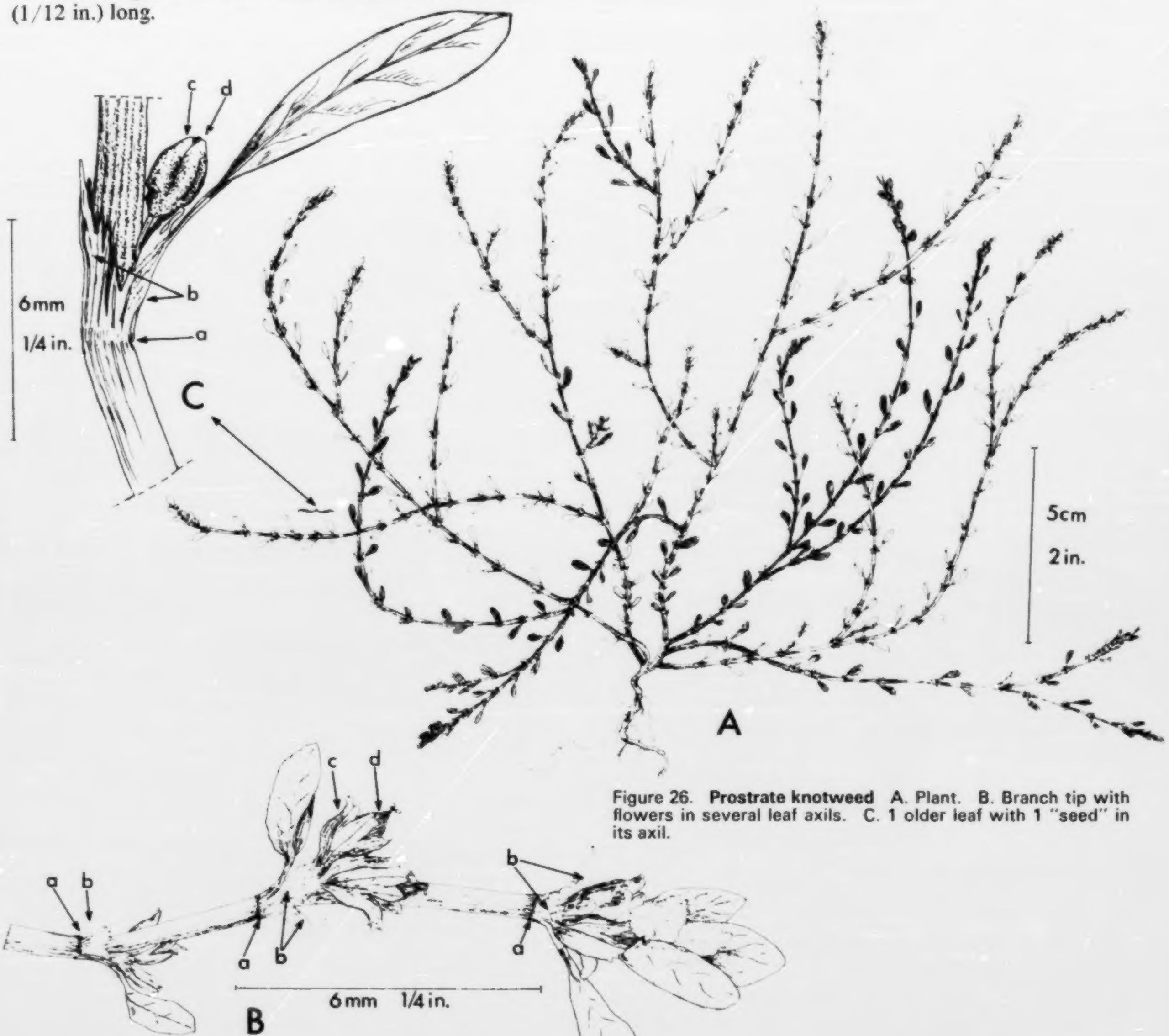


Figure 26. **Prostrate knotweed** A. Plant. B. Branch tip with flowers in several leaf axils. C. 1 older leaf with 1 "seed" in its axil.

**Lady's-thumb**, *Polygonum persicaria* L., (Figure 27 A, B) [renouée persicaire, Red shank, Smartweed] Annual, reproducing only by seed. Stems erect from a taproot, 20 – 100 cm (8 – 40 in.) high, green or reddish, smooth except for distinct nodes (a); each node with a hairy ocrea (membranous sheath) (b, B); leaves alternate (1 per node), narrowly elliptic, 2 – 15 cm (⅘ – 6 in.) long, greenish above and slightly paler below, usually with a reddish to brownish or purplish blotch (c) near the middle; undersurface of leaf often slightly rough with tiny bumps, but never glandular; ocrea (b) arising with the leafstalk at each node (a), membranous and somewhat papery, its surface covered with short, slanting hair (d) and its upper margin ciliate with a fringe of short, erect hair (e) about 1 – 2 mm (1/25 – 1/12 in.) long; flowers small, densely crowded into narrow cylindrical spikes (1 – 4.5 cm, ⅖ – 2 in.) long at ends of stems and branches; each flower with 5 pinkish sepals 2 – 4 mm (1/12 – ⅙ in.) long, sometimes nearly white; seeds more or less enclosed by the sepals when mature, shiny, smooth, black, broadly ovate in outline, about 2 mm (1/12 in.) long, but rounded-triangular or flattened in cross-section, the flattened surfaces never dented-in but the seed often slightly thickened near the middle. Seedling with cotyledons (seed leaves) about 8 – 12 mm (⅓ – ½ in.) long by 2 – 3 mm (1/12 – ⅛ in.) wide, tapered towards both ends, reddish on the undersurface; stem below the cotyledons often reddish to brownish-green; cotyledons soon withering (f) on developing stems.

Lady's-thumb is an introduced weed which occurs in cultivated land on nearly all soil textures throughout Ontario as well as along roadsides and waste places. The seed is a frequent contaminant in small grains. It is distinguished from other members of the Smartweed genus by the following characteristics: undersurface of leaves without matted white hair or yellowish glands, ocrea (b) with hair (d) on the surface and a fringe of longer hair (e) on the margin, and the stem lacking glands on the upper portion near the spikes of flowers. The reddish or purplish blotch (c) usually present on the upper surface of the leaves cannot be relied upon as a distinguishing feature of Lady's-thumb. Occasionally it is absent from this species and frequently can be found on leaves of other species as well.

**Pale smartweed**, *Polygonum lapathifolium* L., (Figure 27C) [persicaire pâle, Pale persicaria, White smartweed], closely resembling Lady's-thumb but is capable of taller growth, occasionally exceeding 2 m (6½ ft) in swampy areas, although usually only 45 – 90 cm (1½ – 3 ft) in cultivated fields, or nearly prostrate in open areas; stems somewhat swollen at or just above the nodes (g), particularly on large plants; undersurface of the first 5 to 7 leaves above the cotyledons (seed leaves) with a short, dense, feltlike mat of whitish hair, then abruptly changing with the next leaf (6th to 8th leaf above cotyledons); that leaf and all others above it lacking the whitish hair, but instead having numerous, extremely tiny, yellowish to amber glands (h), slightly imbedded in the undersurface of the leaf; these glands visible as glints of reflected light when the leaf is rolled backwards over the finger or their presence indicated by a yellowish smudge if a fresh leaf is rubbed against white paper or cloth; ocrea smooth and papery in texture, lacks surface hair, and is either without a fringe on the margin or has such a short fringe of hair (j) it cannot be seen by the naked eye; lower stems smooth and hairless but upper stems and branches near and in the inflorescence somewhat rough or gummy due to tiny, yellowish to amber, unstalked glands mostly less than 0.2 mm (1/100 in.) high, resembling but much shorter than (n) in Figure 27 E. Flowering spikes whitish, or rarely pinkish, long and slender, 7 – 10 cm (3 – 4 in.) long and often drooping, those on side branches usually shorter and rarely drooping; lateral spikes usually with at least 1 cm (⅖ in.) of stem below the lowest flower (as k in Figure 27A); sepals of flowers longer than the seed, their tips folded together into a "beak" above the seed; seed shiny, black, roundish in outline but flattened in cross-section, the flattened sides slightly hollowed or dented in the middle, usually less than 2 mm (1/12 in.) diameter.

Pale smartweed is a common native plant around streams, lakes and wet depressions throughout Ontario, often persisting as a weed in those locations whenever they come under cultivation. It also occurs on moderately well-drained upland soils and is a frequent weed in cultivated fields, pastures, roadsides and gardens. It is distinguished from Lady's-thumb by the matted white-hairy undersides of the lowermost 5 to 7 leaves; tiny, yellow to amber glands (h) on the undersides of upper leaves; lack of hair on ocrea (j); upper stems glandular-roughened; and seeds always flattened and slightly hollowed.

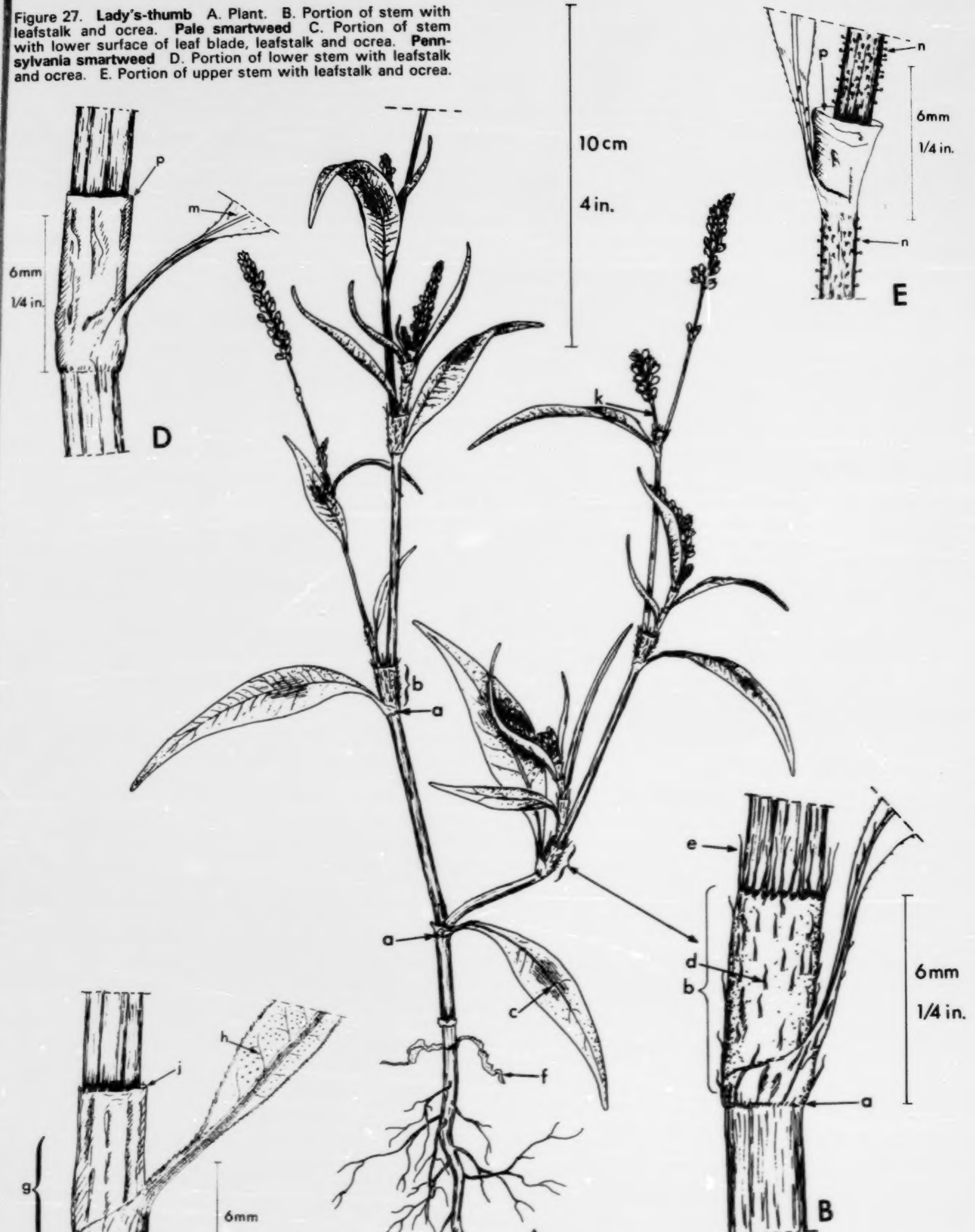
**Green smartweed**, *Polygonum scabrum* Moench., (not illustrated) [renouée scabre, Pale persicaria, Pale smartweed (due to misidentification) ], introduced from Europe but almost identical to the smaller plants of Pale smartweed with ocrea and undersurface of upper leaves as in Figure 27C; distinguished from Pale smartweed by having its flowers in shorter and plumper spikes (1 – 5 cm long by 0.8 – 1.5 cm wide; ⅖ – 2 in. by ⅓ – ⅔ in.), the lateral spikes unstalked (no bare stem) in the axils of leaves, or on stalks mostly less than 1 cm (⅖ in.) long; the sepals only as long as or slightly shorter than the seed; and the flattened seed usually 2 mm (1/12 in.) diameter or larger.

Green smartweed occurs in fields, pastures and gardens throughout Ontario but is far less common than Pale smartweed.

**Pennsylvania smartweed**, *Polygonum pensylvanicum* L., (Figure 27D, E) [renouée de Pennsylvanie, Pinkweed], native to North America and very similar to Pale smartweed in general shape and habit of growth; distinguished from Pale smartweed by the absence of matted whitish hair on the undersurface of lower leaves although a few, scattered, short, straight hairs (m) may be present; the absence of, or only occasional presence of tiny, yellowish, unstalked glands on the undersurfaces of upper leaves; the presence of orange to red or purplish, distinctly stalked glands (glandular hair) (n) on the upper stems below and in the flower spikes; the deep pink to reddish color of the flowering spikes; and the larger seeds round-ovate, flattened, slightly hollowed on one side but not the other, and about 3 mm (⅛ in.) long by 2.5 mm (1/10 in.) wide; their larger size giving the spikes a coarser texture than in Pale smartweed.

Pennsylvania smartweed is native in moist soils in much of southern Ontario. It occurs as a weed in meadows, hay fields, depressional areas in cultivated land, and in roadside ditches. It is distinguished from Lady's-thumb by the complete absence of hair from the surface of the ocrea (D, E), the complete absence of a fringe of hair from the margin of the ocrea (p), the presence of stalked glands (n) on the upper stems, the coarser spikes and larger seeds.

Figure 27. **Lady's-thumb** A. Plant. B. Portion of stem with leafstalk and ocrea. **Pale smartweed** C. Portion of stem with lower surface of leaf blade, leafstalk and ocrea. **Pennsylvania smartweed** D. Portion of lower stem with leafstalk and ocrea. E. Portion of upper stem with leafstalk and ocrea.


p
m
6mm
1/4 in.
D
10 cm
4 in.
p
n
6mm
1/4 in.
n
E
k
b
a
a
c
f
A
e
d
b
6mm
1/4 in.
a
B
h
j
g
6mm
1/4 in.
C

**Water smartweed,** *Polygonum amphibium* L., (not illustrated) [renouée amphibie, *Polygonum natans* (Michx.) Eat.] and **Swamp smartweed,** *Polygonum coccineum* Muhl., (not illustrated) [renouée ecarlate], are perennials which reproduce by seed and by coarse underground stems (rhizomes). Both are native plants resembling Lady's-thumb but are coarser and usually grow in standing water or wet situations. Both perennials can also grow in comparatively well-drained soils such as depressional areas in cultivated fields. They can be distinguished by occurring in distinct patches or colonies due to vegetative reproduction from rhizomes; their new ocrea often with a green, leaflike flange or collar around the upper margin; leaves and stems often quite hairy; and their prominent, bright pink spikes being short and thick in Water smartweed (1 – 4 cm long by 1 – 2 cm thick; ⅖ – 1⅗ in. by ⅖ – ⅘ in.), or long and slender, 4 – 18 cm long by 7 – 15 mm thick (2 – 7 in. by ¼ – ⅗ in.) in Swamp smartweed.

Water smartweed and Swamp smartweed occur throughout Ontario in wet habitats but are problems only occasionally in hay meadows, wet pastures and poorly drained locations in cultivated fields.

**Wild buckwheat,** *Polygonum convolvulus* L., (Figure 28) [renouée liseron, Black bindweed, Climbing bindweed, Corn bindweed] Annual, reproducing only by seed. Stems 5 cm (2 in.) to more than 2 m (6½ ft) long, slender, prostrate or twining vine-like over other plants or any available support, with a short ocrea (membranous sheath) (a) at each node (joint); leaves alternate (1 per node), arrowhead-shaped with pointed lobes (b) and elongated slender tip (c); flowers (d) small, 5 mm (⅕ in.) across, with 5 greenish to whitish sepals (no petals), in small clusters (C) from axils of leaves or at tips of branches; seeds dull black, 3 mm (⅛ in.) long, pointed at both ends but sharply triangular in cross-section and often partly or wholly enclosed by the dry sepals even after shattering from the plant.

Wild buckwheat is a common weed in cultivated fields and gardens throughout all of Ontario and its seeds frequently contaminate small grains. Wild buckwheat is distinguished from all other members of the Smartweed Family by its twining stems, arrowhead-shaped leaves, and the seedling by usually longer cotyledons (e) (7 – 33 mm, ¼ – 1¼ in. long). It is distinguished from Field bindweed (Figure 110) by its annual root system with thin, downward-tapering taproot (f), by the presence of an ocrea (a) around the stem at each node (joint); the very small, short-stalked greenish flowers (d), borne in the axils of leaves (C) or in clusters along short branches, and the dark, sharply triangular seeds.

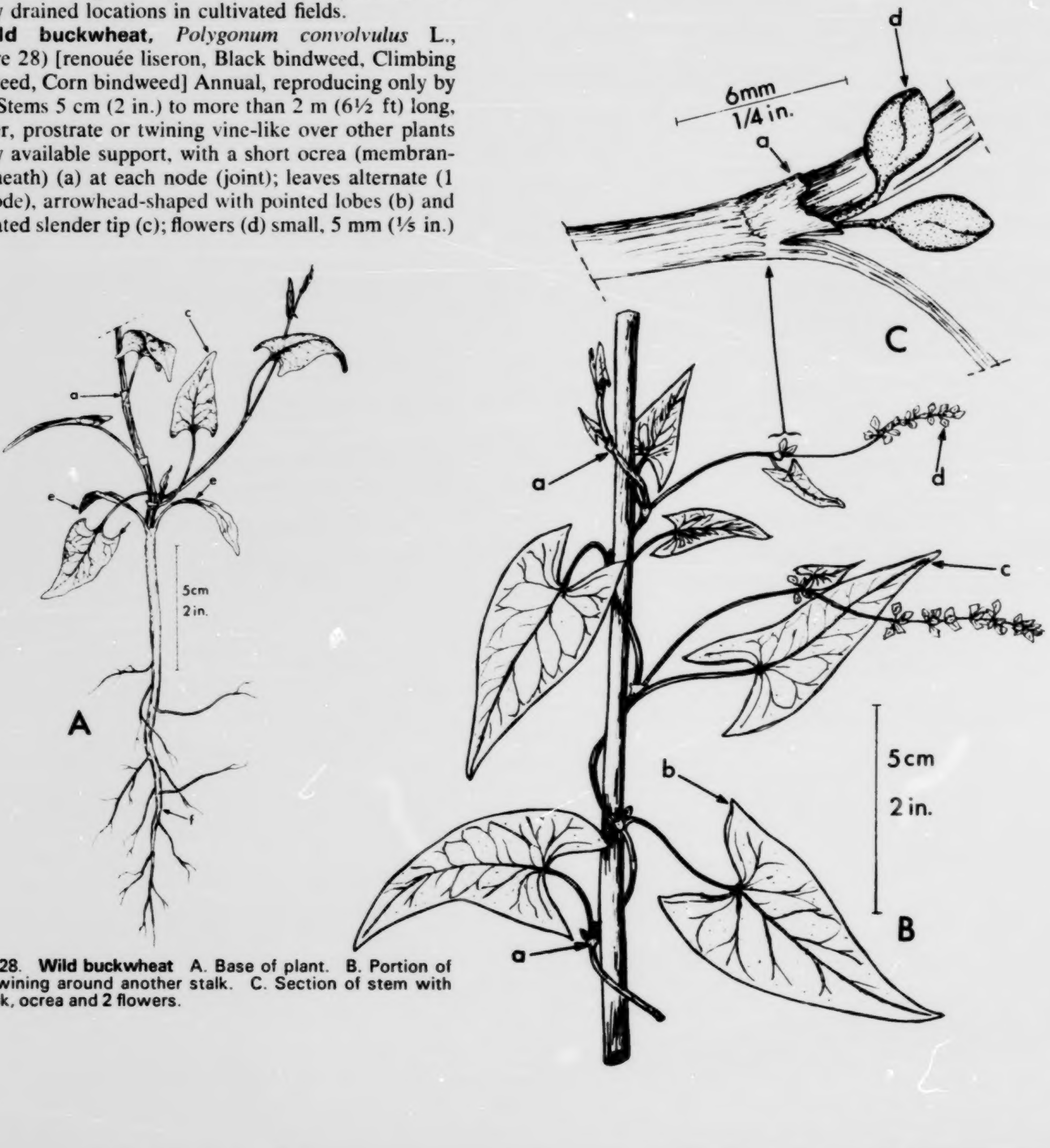
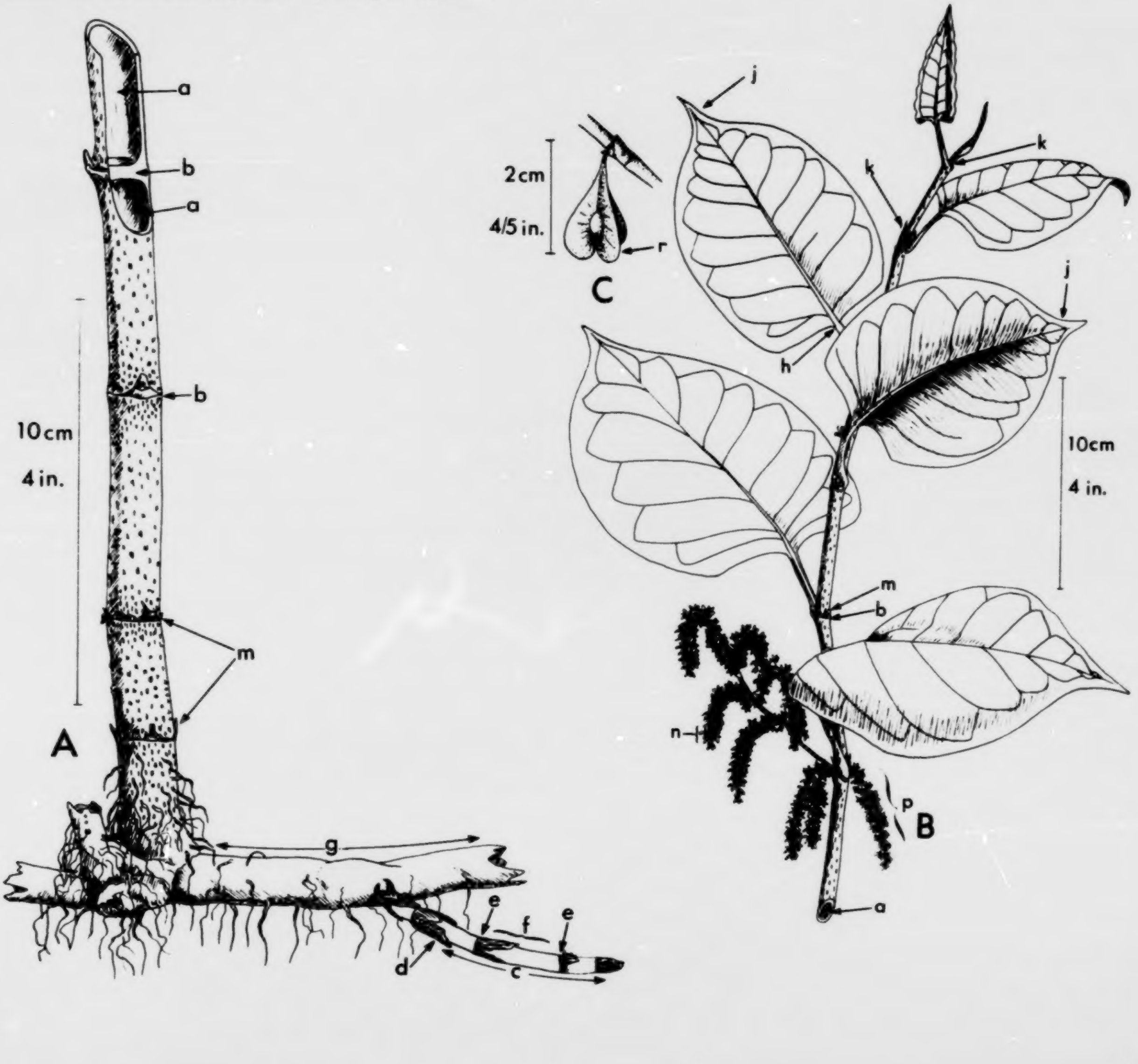


Figure 28. **Wild buckwheat** A. Base of plant. B. Portion of stem twining around another stalk. C. Section of stem with leafstalk, ocrea and 2 flowers.

**Japanese knotweed,** *Polygonum cuspidatum* Sieb. & Zucc., (Figure 29, Plate 10) [renouée Japonaise, Mexican bamboo, *Polygonum sieboldii*] Perennial, reproducing by widely spreading underground rhizomes and only rarely by seed. Stems erect, 75 cm – 3 m (2½ – 10 ft) high, branched or unbranched, round, smooth, often mottled reddish-purple, hollow (a) except at the nodes (b), dying back to the ground each winter, arising in early spring and throughout the growing season from widely spreading, shallow or deeply penetrating, thick, vigorous, whitish underground rhizomes, the younger rhizomes (c) whitish except for dark brown, papery sheaths (d) with distinct nodes (e) and internodes (f), the older ones (g) thick, brownish, firm and often somewhat woody; leaves alternate (1 per node), long-stalked, broadly ovate, 7.5 – 15 cm (3 – 6 in.) long, 5 – 12.5 cm (2 – 5 in.) wide, square-cut (h) or slightly angled at the base, abruptly pointed at the tip (j) with the tip often stretched out; ocrea (membranous sheath) (k) surrounding stem at and immediately above every node, colorless or light greenish and turning brownish, hairless, often somewhat inflated, but soon disintegrating (m); flowers (n) individually small but numerous and forming showy, greenish-white branching panicles (p) from the axils of upper leaves; flowers unisexual, the sexes on separate plants; seeds (C) only rarely produced, these hanging from the branches, triangular, about 7 mm (¼ in.) long, shiny, enclosed in a papery, 3-winged (r), teardrop-shaped, dry calyx. Flowers from July to September.

Japanese knotweed occurs in southern Ontario in gardens, around old buildings or former building sites, waste places and roadsides, having been introduced as a bushy, hardy perennial for use as a screen or foundation planting. It is distinguished by its very vigorous growth beginning in early spring and continuing to late autumn; thick, widely spreading, whitish (c) or brownish (g) rhizomes; erect stems, often mottled, hollow (a) except at the nodes (b); broad leaves with abruptly narrowed tip (j) and a prominent ocrea (k, m) around the stem at the base of each leafstalk; and showy bunches (p) of small greenish-white flowers. Two or more similar but smaller and usually less vigorous relatives of Japanese knotweed, presently grown as foundation or ground cover, may occasionally also escape from cultivation.

Figure 29. **Japanese knotweed** A. Hollow stem from branching rhizome. B. Top of flowering stem. C. Winged "seed."



# GOOSEFOOT FAMILY (Chenopodiaceae)

**Jerusalem-oak**, *Chenopodium botrys* L., (Figure 30) [chénopode botrys, Feather geranium] Annual, reproducing only by seed. Stems erect, finely branched, up to 60 cm (2 ft) high; the whole plant, stems, leaves and flowers covered with very short-stalked glandular hair (a) giving it a sticky texture; cotyledons (seed leaves) very small, 5 mm (⅕ in.) or shorter and ¼ as wide, soon shriveling (b); first 3 or 4 true leaves with nearly smooth margins (c) or only shallowly lobed (d); all other leaves deeply and irregularly lobed (e); individual flowers extremely small, about 1 mm (1/25 in.) across, but crowded into small clusters on short branches from the axils of smaller upper leaves; flowers lacking petals but with yellowish-green to greenish sepals; whole plant with a characteristic though not unpleasant odor.

Jerusalem-oak is an introduced plant which occurs throughout southern Ontario in coarse-textured soils, often along sandy shores of lakes and streams and occasionally in gardens, roadsides and waste places. It is distinguished from other members of the Goosefoot Family by its sticky texture, distinct odor, irregularly lobed leaves and fine-textured inflorescence.

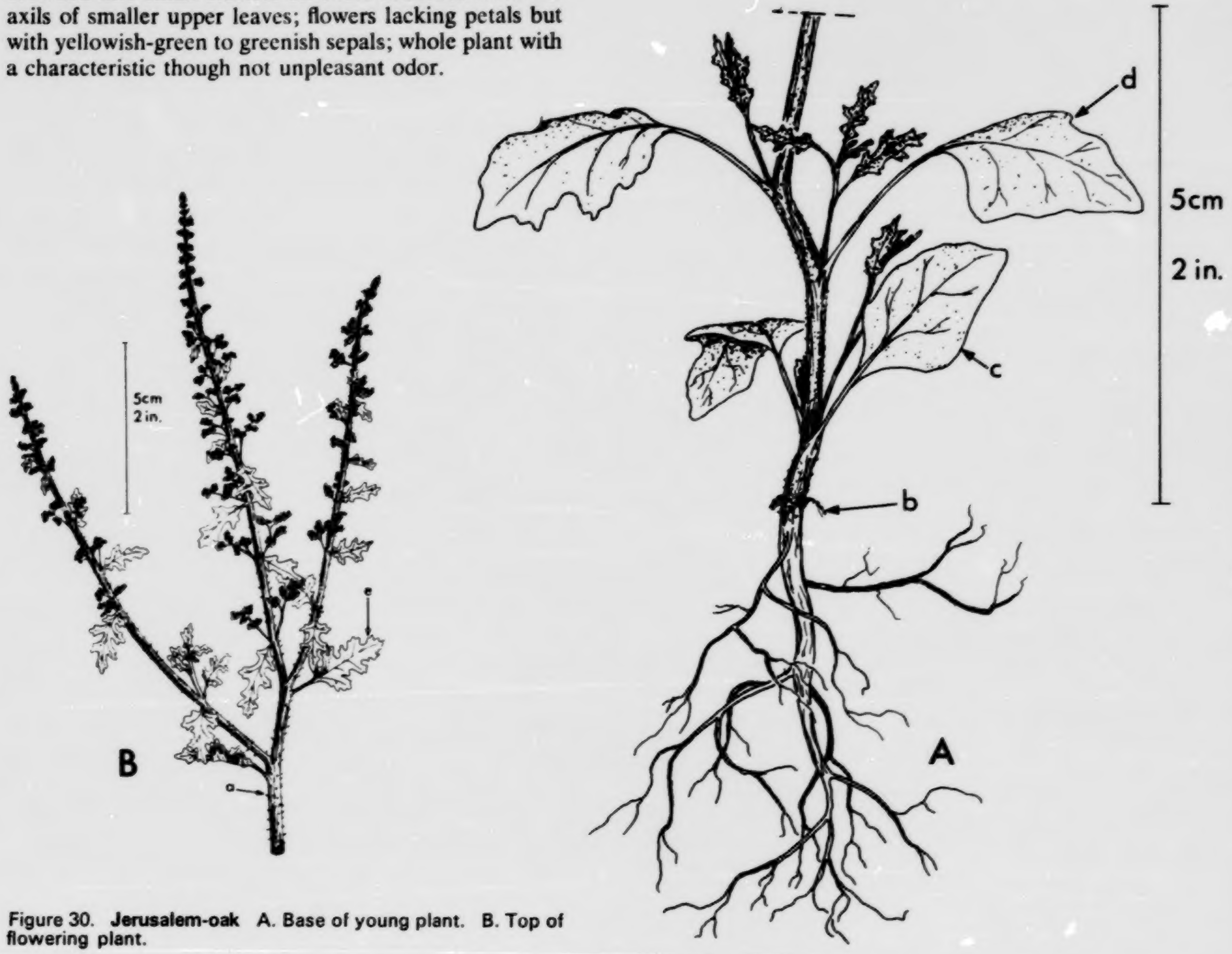


Figure 30. **Jerusalem-oak** A. Base of young plant. B. Top of flowering plant.

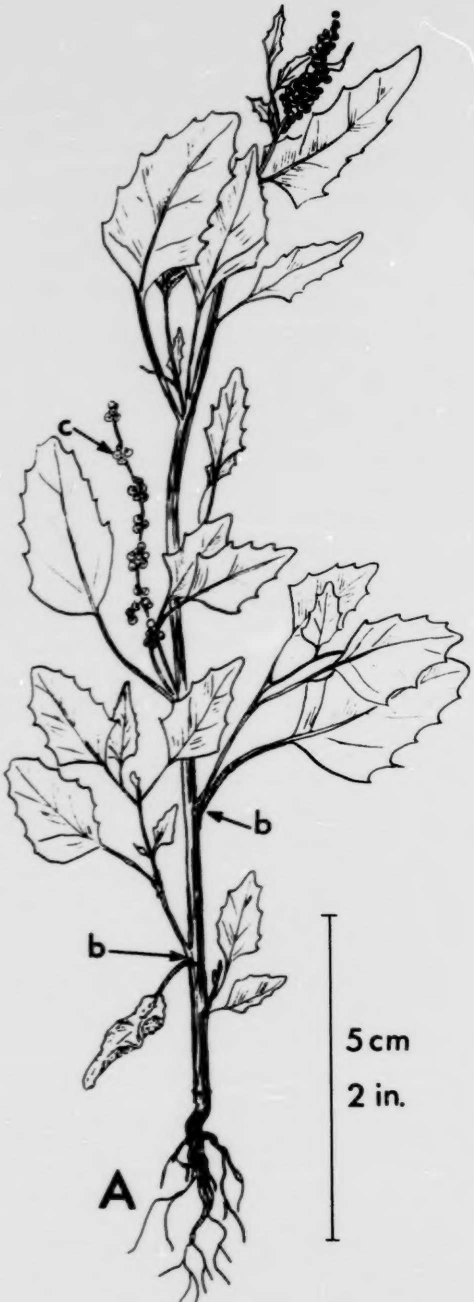
**Lamb's-quarters**, *Chenopodium album* L., (Figure 31, Plate 16) [chénopode blanc, Fat-hen, Pigweed, White goosefoot, White pigweed] Annual, reproducing only by seed. Very variable in appearance: stems 20 – 200 cm (8 in. – 6½ ft) high, branched or unbranched, smooth, green or with reddish or purplish lengthwise stripes and ridges; first 2 or 4 true leaves (a) apparently opposite (2 per node), but all later leaves and branches distinctly alternate (1 per node) (b); leaves stalked, the blades 3 – 10 cm (1 – 4 in.) long, lance-shaped or more often broadly triangular with irregular, usually shallow teeth; leaves green or grayish due to a covering of a white mealiness or powderiness, sometimes with reddish undersurface on young plants; flowers very small, greenish, densely grouped together into small, thick, granular clusters (c) along the main stem and upper branches, having 5 green sepals but no petals; seeds small, rounded in outline, somewhat flattened, 1 – 1.5 mm (1/25 – 1/16 in.) diameter, enclosed in a very thin, membranous, smooth, whitish covering (pericarp) which is readily fractured and lost when dry.

Lamb's-quarters is very widespread throughout Canada, occurring in cultivated fields, pastures, wasteland, roadsides, gardens and almost anywhere the soil is disturbed.

**Maple-leaved goosefoot**, *Chenopodium gigantospermum* Aellen, (not illustrated) [chénopode hybride, *C. hybridum* L.], resembling Lamb's-quarters but distinguished by its softer and thinner, bright green to yellowish-green leaves having 2 or 3 broad, deep, rather sharp-pointed lobes on each side, thus resembling maple leaves in general outline. Maple-leaved goosefoot occurs throughout southern Ontario in gardens, waste areas, roadsides, and occasionally along the edges of fields.

**Net-seeded lamb's-quarters**, *Chenopodium berlandieri* Moq. var. *schackei* (Murr.) Murr., (not illustrated) [chénopode de Berlandier], closely resembling Lamb's-quarters but its leaves are usually narrower and thicker; after flowering, 1 or 2 seeds (fruits) usually stick out from each cluster on stalks 1 – 3 mm (1/25 – ⅛ in.) long; all seeds and seed covering (pericarp) have honeycombed markings over their surfaces which can be seen only under magnification; and the plant has a rather unpleasant odor.

Lamb's-quarters and the goosefoots are distinguished from the related atriplex (Figure 34) by having all leaves alternate except sometimes the first 2 or rarely 4 which appear to be opposite, whereas the first 6 or 8 leaves in atriplex are distinctly opposite and so are the branches which grow from their axils.



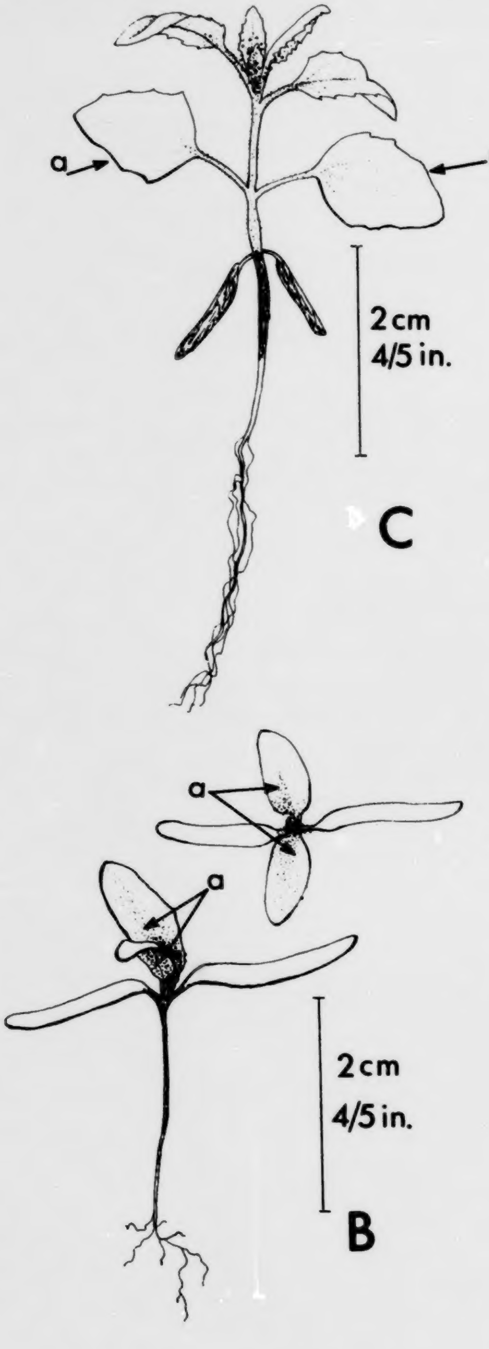


Figure 31. **Lamb's-quarters** A. Young flowering plant. B. Seedling in 2nd true-leaf stage, top and side views. C. Seedling in 6th true-leaf stage.

**Oak-leaved goosefoot**, *Chenopodium glaucum* L., (Figure 32, Plate 11) [chénopode glauque, Saline goosefoot, *C. salinum* Standl.] Annual, reproducing only by seed. Similar to Lamb's-quarters in general appearance but much shorter, rarely exceeding 40 cm (16 in.) in height and often prostrate or nearly so; leaves alternate (1 per node), generally smaller, up to 4 cm (1⅗ in.) long, white on the undersurface, green or sometimes slightly reddish on the upper surface, shallowly and more or less uniformly round-toothed around the margins; granular clusters of tiny greenish flowers (later fruits) smaller and forming short, irregular spikes in the axils of the upper leaves; seeds dark brown.

Oak-leaved goosefoot occurs throughout Ontario along roadsides and rights-of-way, in pastures, waste places, edges of fields and gardens in situations ranging from dry to moist soils and from very coarse gravels to fine-textured clays, and is often the main weed in depressional areas with saline soils.

**Strawberry blite**, *Chenopodium capitatum* (L.) Aschers, (Figure 32) [chénopode capité, Blited goosefoot, Red goosefoot, Strawberry-spinach] Annual or occasionally winter annual, reproducing only by seed. Stems erect, single or branching, 20 – 60 cm (8 – 24 in.) high, smooth or ridged lengthwise, light green to yellowish-green, sometimes reddish; young plants either developing into a rosette of numerous, long-stalked leaves or immediately producing an elongated stem with only a few leaves; lower leaves long-stalked; blade somewhat triangular, with large irregular teeth (a) or lobes; flowers tiny, greenish, lacking petals and densely crowded into fleshy masses (b) in the axils of leaves in the upper part of the plant, these at first green but turning red with maturity and forming the "strawberry"; seeds dull black, flattened, rounded in outline, 1.5 mm (1/16 in.) wide.

Strawberry blite is native throughout Ontario, occurring in edges of woods, wasteland, roadsides and gardens, but only rarely in cultivated fields. Young plants of Strawberry blite can be confused with those of Maple-leaved goosefoot, but the leaves of Strawberry blite usually have more and finer teeth (a) and frequently have a reddish cast where those of Maple-leaved goosefoot are yellowish-green to bright green. Older plants are characterized by the bright red, fleshy, seed-containing clusters (b), the "strawberries", in axils of the leaves.

Figure 32. **Oak-leaved goosefoot**

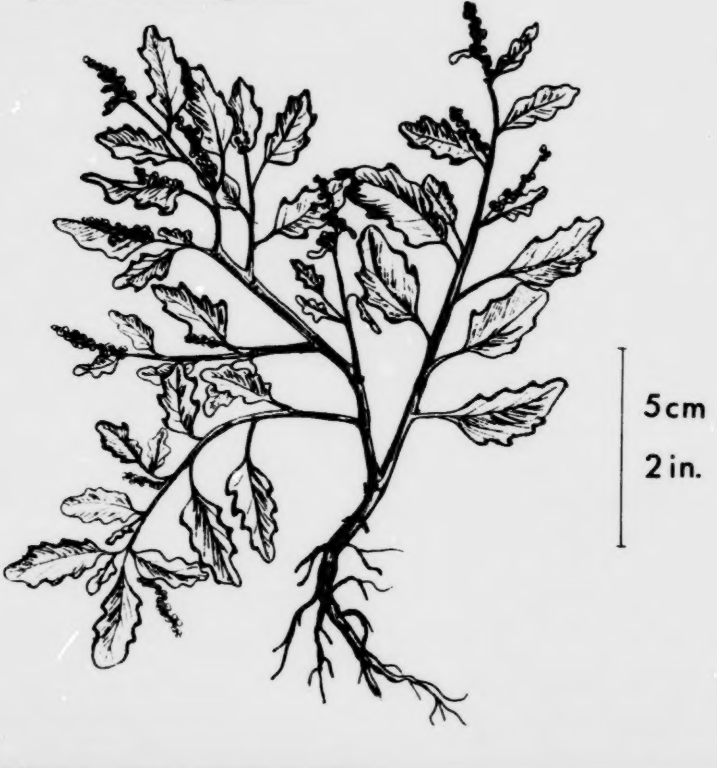
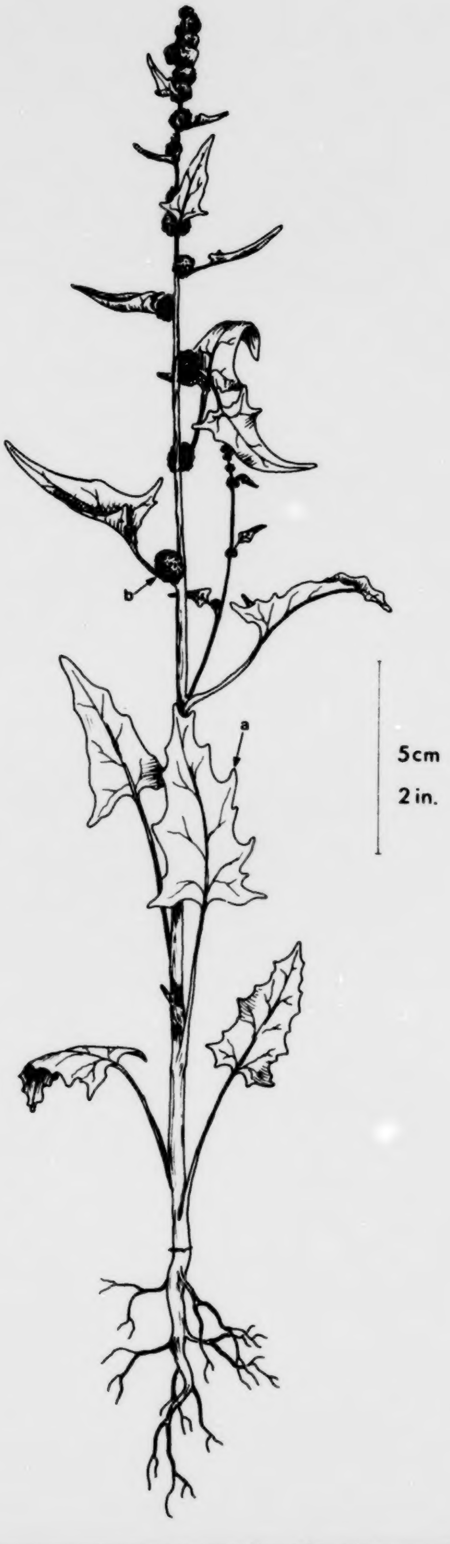


Figure 33. **Strawberry blite**



**Spreading atriplex**, *Atriplex patula* L., (Figure 34A) [arroche ételée, Orache, Spreading orache] Annual, reproducing only by seed. Plant variable; stems prostrate or nearly erect; at least the first 6 leaves opposite (2 per node), but usually alternate (1 per node) towards the ends of stems and branches; branching pattern therefore opposite near the base and alternate farther from the base; leaves linear to narrowly lance-shaped (a) and without teeth or lobes, or somewhat broader and with 1 or 2 lateral lobes (b) and sometimes with a few teeth along the margins above the lobes, green, somewhat fleshy, mostly 1 –5 cm (⅖ – 2 in.) long; flowers very small and unisexual; male flowers with only stamens and sepals (no pistil or petals); female flowers only a single pistil (without stamens, petals or sepals); each tiny flower enclosed between green, triangular to diamond-shaped bracts (c) about 1 – 4 mm (1/25 – 1/16 in.) long and wide, and 2 to 5 of these usually clustered together in the axils of smaller leaves along nearly all the stems and branches; both sexes on one plant.

Spreading atriplex is a native plant in both saline and non-saline moist soils throughout Ontario but frequently occurs as a weed in gardens, waste areas, and row crops in the southern part of the province. It is distinguished from Halbred-leaved atriplex by usually being prostrate, its narrower leaves (a) without lobes or teeth and the wider leaves having a pair of lobes (b) near the base that point outwards and upwards, and by the diamond-shaped pair of bracts (c) enclosing each tiny flower. It is distinguished from Lamb's-quarters by its several pairs of opposite leaves and branches, and by the diamond-shaped bracts (c) enclosing each flower.

**Halbred-leaved atriplex**, *Atriplex hastata* L., (Figure 34B) [arroche hastée, Atriplex, Orache, Spreading orache, *Atriplex patula* L. var. *hastata* (L.) Gray], very similar to Spreading atriplex but usually more erect, often 1 m (40 in.) or taller; stems round or ridged lengthwise and usually with lengthwise stripes of alternate dark green and yellowish-green lines; leaves long-stalked, the blades more or less triangular in outline, their bases nearly flat or broadly tapering, usually with 2 lateral lobes (d) that point outwards (halbred-shaped), green to dark green and somewhat fleshy; the pair of bracts enclosing each tiny unisexual flower triangular, flat-based, about 4 mm long and 2.5 mm wide (1/6 in. x 1/10 in.).

The distribution and occurrence of Halbred-leaved atriplex are similar to that of Spreading atriplex. Both kinds are often mistaken for Lamb's-quarters or one of the other goosefoots. The atriplexes are readily distinguished by having more than just 1 or 2 pairs of opposite leaves and branches on the lower part of the stem, and by the coarser appearance of their clusters of flowers because each tiny flower is enclosed in 2 triangular or diamond-shaped bracts.

**Garden atriplex**, *Atriplex hortensis* L., (not illustrated) [arroche des jardins, Hungarian spinach], similar to Halbred-leaved atriplex but larger, with erect stems, to 2 m (6½ ft) high and usually erect branches; leaves variable from narrow and lance-shaped, to ovate or very broad triangular, these as much as 20 cm (8 in.) long and 10 – 15 cm (4 – 6 in.) wide, greenish above and whitish below, becoming bronzy-green both above and below towards maturity; flowers very small but enclosed in a pair of round bracts which enlarge as the seed forms and may be 12 mm (½ in.) or more in diameter.

Garden atriplex occurs in scattered localities throughout Ontario, usually persisting around old gardens and in waste areas.

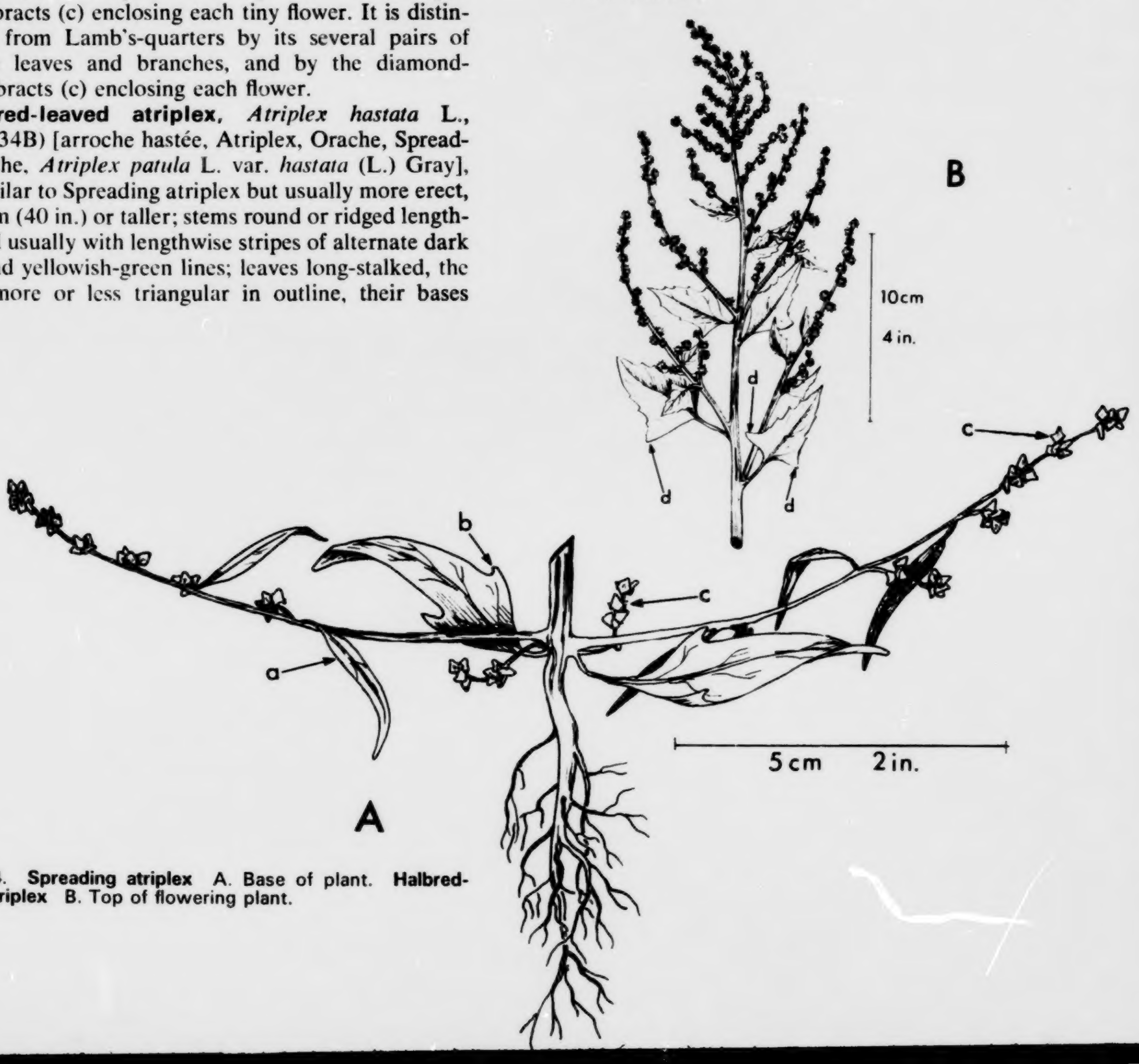
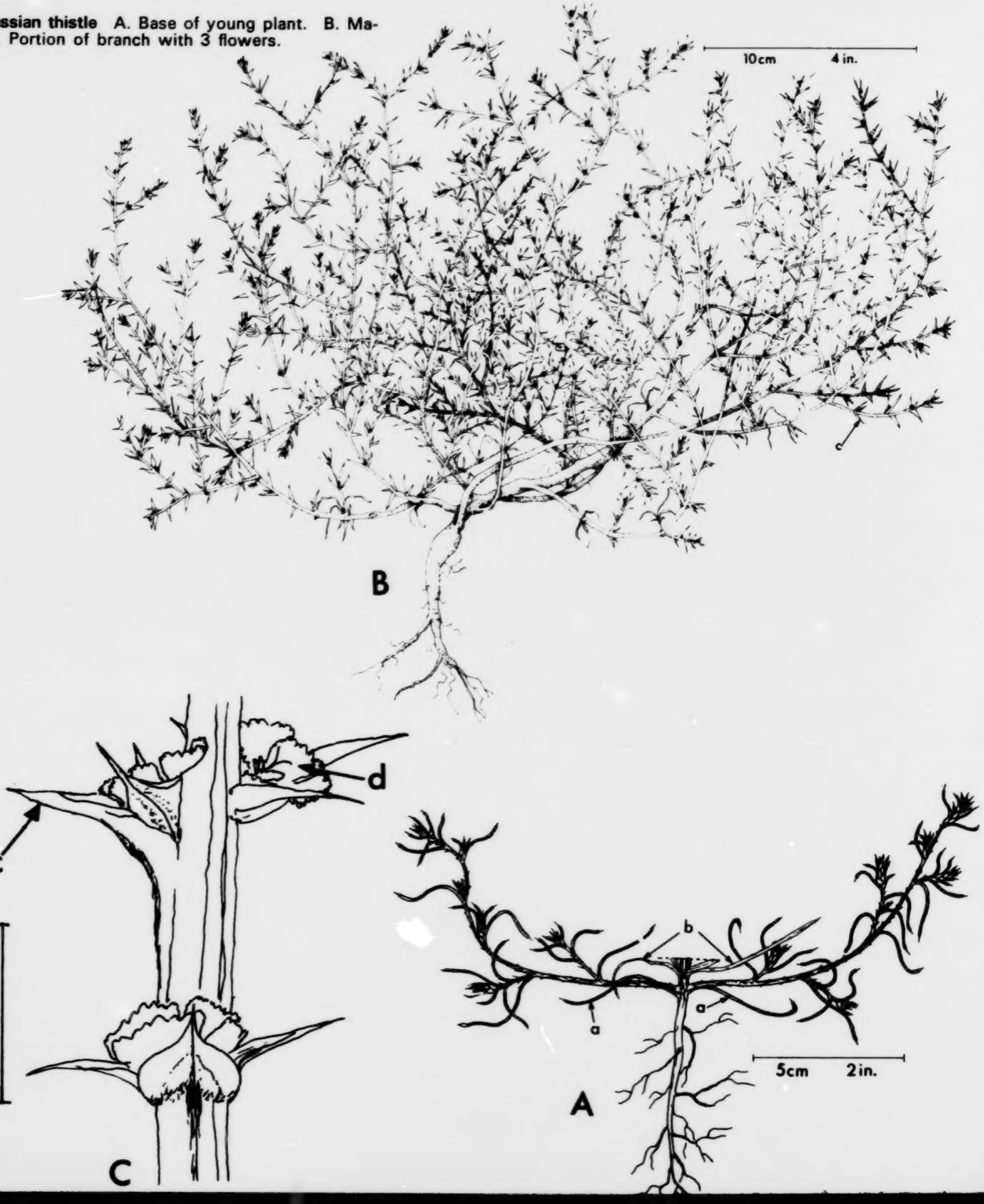


Figure 34. **Spreading atriplex** A. Base of plant. **Halbred-leaved atriplex** B. Top of flowering plant.

**Russian thistle,** *Salsola pestifer* A. Nels., (Figure 35, Plate 48) [soude roulante, Saltwort, Tumbleweed, *Salsola kali* L. var. *tenuifolia* Tausch] Annual, reproducing only by seed. A very bushy-branched, spiny plant 5 – 120 cm (2 in. – 4 ft) high; stems green, usually striped with red lines, and rough with short, firm hair; cotyledons (seed leaves) (a) very narrow and grasslike, gradually lengthening and reaching 3 – 5 cm (1 – 2 in.) long; first true leaves (b) apparently opposite (2 per node), as long as or longer than the cotyledons, needlelike, round or slightly flattened in cross-section, softly sharp-pointed; later leaves gradually shorter but mostly alternate (1 per node); young plants often with crowded erect leaves and resembling a grass; older plants with firm, short, bract-like leaves (c), usually only 6 mm (¼ in.) long, with a broad base tapering to a slender point and ending in a hard, sharp spine; flowers (d) small, lacking petals but with 5 pinkish to greenish-white, membranous-winged sepals, stalkless in the axil of each cluster of 3 spine-tipped bract-like leaves. At maturity, the brittle stem breaks at the top of the root and the whole plant is rolled and tumbled by the wind, dropping seeds with each bounce and turn. Seeds cone- or top-shaped, the broader end flattened or hollowed and with a small point in the center, about 2 mm (1/12 in.) across and the same long; the coiled embryo being visible through the nearly transparent seed coat.

Russian thistle occurs throughout Ontario, usually in coarse soils along roadsides, railroads, waste areas, and occasionally in pastures and fields on sandy soils. It is distinguished from other plants called "tumbleweed" by the long, thin, needlelike leaves (a, b) of the young plant, and the short leaves (c) and extremely spiny nature of the older plant.

Figure 35. **Russian thistle** A. Base of young plant. B. Mature plant. C. Portion of branch with 3 flowers.

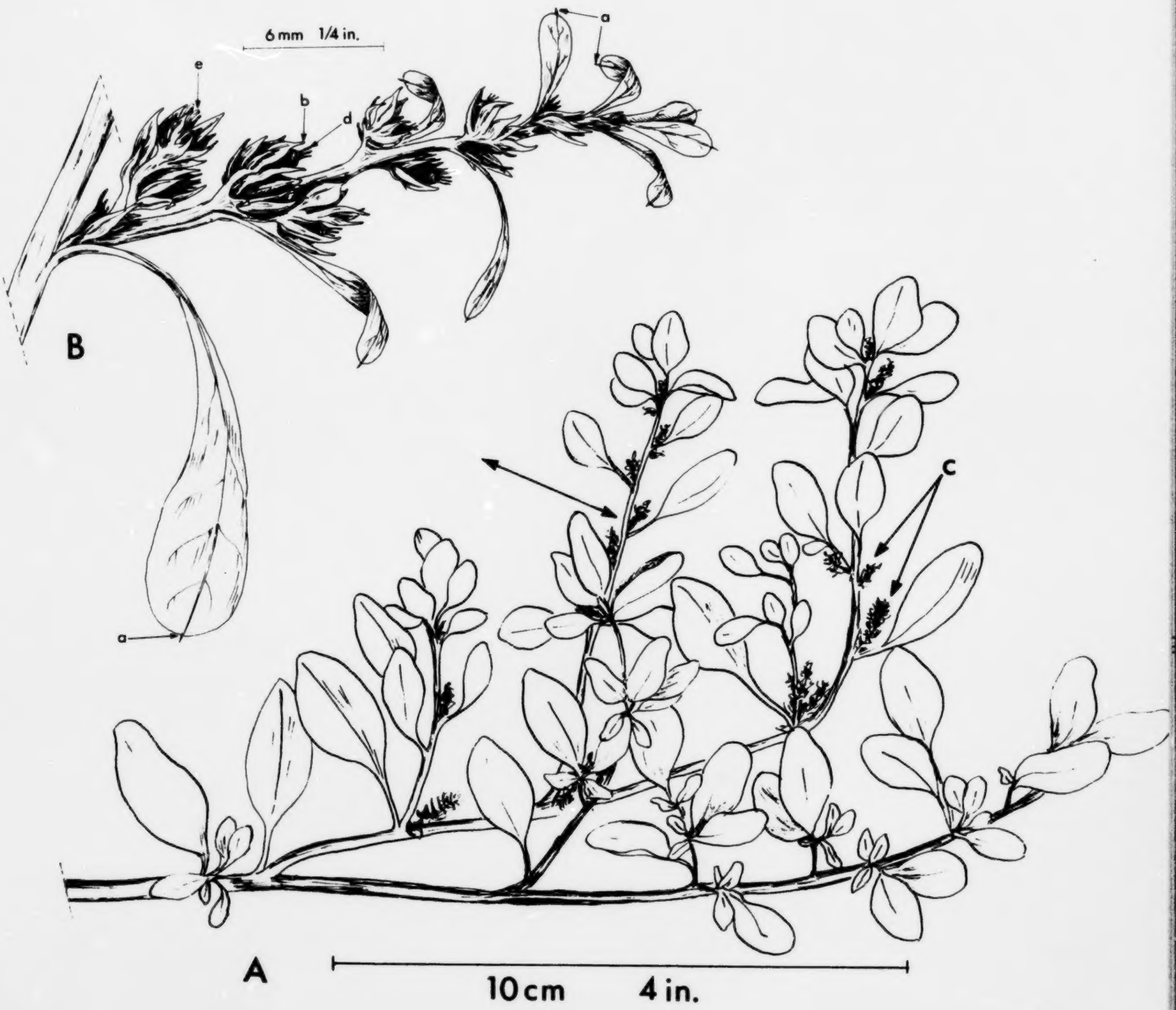


# AMARANTH FAMILY (Amaranthaceae)

**Prostrate pigweed**, *Amaranthus blitoides* S. Wats., (Figure 36) [amarante fausse-blite, Prostrate amaranth, Prostrate pigweed, Spreading amaranth, Tumbleweed, *Amaranthus graecizans* L.] Annual, reproducing only by seed. Stems and leaves prostrate or with tips of some branches raised 2 – 5 cm (1 – 2 in.) above the ground surface, 10 – 120 cm (4 in. – 4 ft) long, much-branched and often forming thick mats, usually not rooting from the nodes, green or purplish-red, somewhat fleshy; leaves alternate (1 per node), numerous along the branches, 1 – 5 cm (⅖ – 2 in.) long, the blade paddle-shaped, light green or sometimes a bit reddish, rounded or slightly indented at the end and usually ending in a short, very soft spine (a); flowers very small (3 mm, ⅛ in. long), greenish, without petals; sepals narrow, bract-like; 2 or more flowers plus several narrow bracts (b) in clusters on short lateral branches (c) in the axils of small leaves (B); each flower unisexual, either female (seed-producing) with only a pistil (d) or male (pollen-producing) with only stamens (e); seeds black, disk-shaped, about 1.5 mm (1/16 in.) diameter.

Prostrate pigweed occurs throughout southern Ontario in waste areas, roadsides, gardens and in some row crops, usually on coarse or sandy soils. It is distinguished from Tumble pigweed by its prostrate habit, the narrow bracts (b) about the same length as the sepals and larger seed; from Redroot pigweed by its prostrate habit, its flowers on very short axillary branches (c), and its larger seeds; from Purslane by its thinner leaves with pointed tips (a) and its clusters of narrow-bracted flowers (b).

Figure 36. **Prostrate pigweed.** A. Portion of a prostrate branch. B. Short branch with several clusters of flowers.



**Tumble pigweed,** *Amaranthus albus* L., (Figure 37) [amarante blanche, Amaranth, Tumbling amaranth, Tumbleweed, Tumbling pigweed, White pigweed] Annual, reproducing only by seed. Very much like Prostrate pigweed but its main branches more or less erect, up to 1 m (3⅓ ft) high, bushy-branched, yellowish-green to whitish in color; young leaves up to 8 cm (3⅕ in.) long, the blade rounded or paddle-shaped; flowers very similar to those of Prostrate pigweed, but the bracts (a) around the sepals firmer, sharper, and longer (about 6 mm, ¼ in.) being about twice as long as the flowers; seed round, flattened, less than 1 mm (1/25 in.) diameter.

Tumble pigweed occurs throughout Ontario, being more common in the southern portion in cultivated fields, wasteland, roadsides and gardens, usually on coarse or sandy soils. It is distinguished from Prostrate pigweed by its erect, whitish stems, smaller seeds, and the spiny-tipped long-bracted (a) flower clusters; and from Redroot pigweed by its smaller leaves, and by its flowers in small clusters (B) in axils of leaves along the branches.

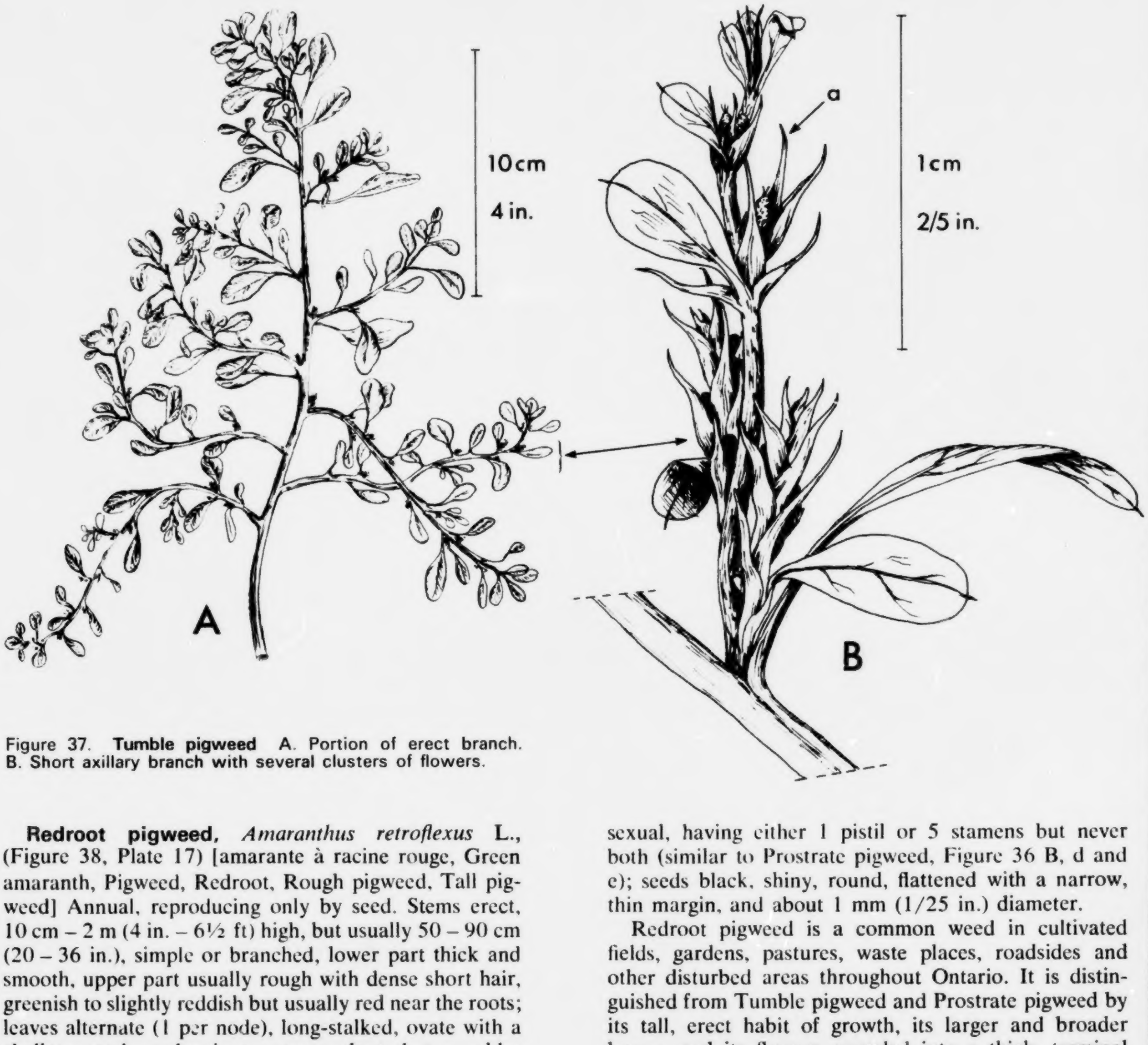


Figure 37. **Tumble pigweed** A. Portion of erect branch. B. Short axillary branch with several clusters of flowers.

**Redroot pigweed,** *Amaranthus retroflexus* L., (Figure 38, Plate 17) [amarante à racine rouge, Green amaranth, Pigweed, Redroot, Rough pigweed, Tall pigweed] Annual, reproducing only by seed. Stems erect, 10 cm – 2 m (4 in. – 6½ ft) high, but usually 50 – 90 cm (20 – 36 in.), simple or branched, lower part thick and smooth, upper part usually rough with dense short hair, greenish to slightly reddish but usually red near the roots; leaves alternate (1 per node), long-stalked, ovate with a shallow notch at the tip on young plants but on older plants somewhat diamond-shaped, dull green above but lighter and with prominent whitish veins below, and somewhat hairy; inflorescence a coarse, branching, bristly panicle made up of a short, thick terminal spike (a) with several outward-pointing finger-like spikes (b) and smaller spikes in some lower leaf axils (c), each spike made up of many tiny flowers and spiny-tipped bracts (d) up to 8 mm (⅓ in.) long; each flower unisexual, having either 1 pistil or 5 stamens but never both (similar to Prostrate pigweed, Figure 36 B, d and e); seeds black, shiny, round, flattened with a narrow, thin margin, and about 1 mm (1/25 in.) diameter.

Redroot pigweed is a common weed in cultivated fields, gardens, pastures, waste places, roadsides and other disturbed areas throughout Ontario. It is distinguished from Tumble pigweed and Prostrate pigweed by its tall, erect habit of growth, its larger and broader leaves, and its flowers crowded into a thick, terminal panicle as well as in some of the lower leaf axils; from Smooth pigweed by its coarse, harsh inflorescence; and from Green pigweed by the somewhat dull green color of its leaves, the dense covering of short hair on its upper stem, the thick, coarse, bristly terminal panicle with the uppermost central spike (a) extending only a short distance above the rest of the panicle, and by two features requiring magnification to see: the sepals of each flower are broader above the middle and rounded or somewhat flattened at their tips, and its male flowers usually have 5 stamens each.

**Smooth pigweed,** *Amaranthus hybridus* L., (not illustrated) [amarante hybride, Green amaranth, Prince's-feather, Wild beet, *A. hypochondriacus* L.], similar in general appearance to Redroot pigweed but not as hairy; inflorescence much finer, the individual spikes being nearly always less than 1 cm (⅖ in.) thick, much less spiny because of their shorter bracts (3 – 4 mm, ⅛ – ⅙ in.) and smaller flowers (2 mm, 1/12 in.), hence the name "smooth". Smooth pigweed occurs in gardens, fields and waste places in southern Ontario especially the southwestern counties.

Hydridization is known to occur among Redroot pigweed, Green pigweed and Smooth pigweed. Plants which seem to be intermediate or have a mixture of characteristics from any of these species could be hybrids between them.

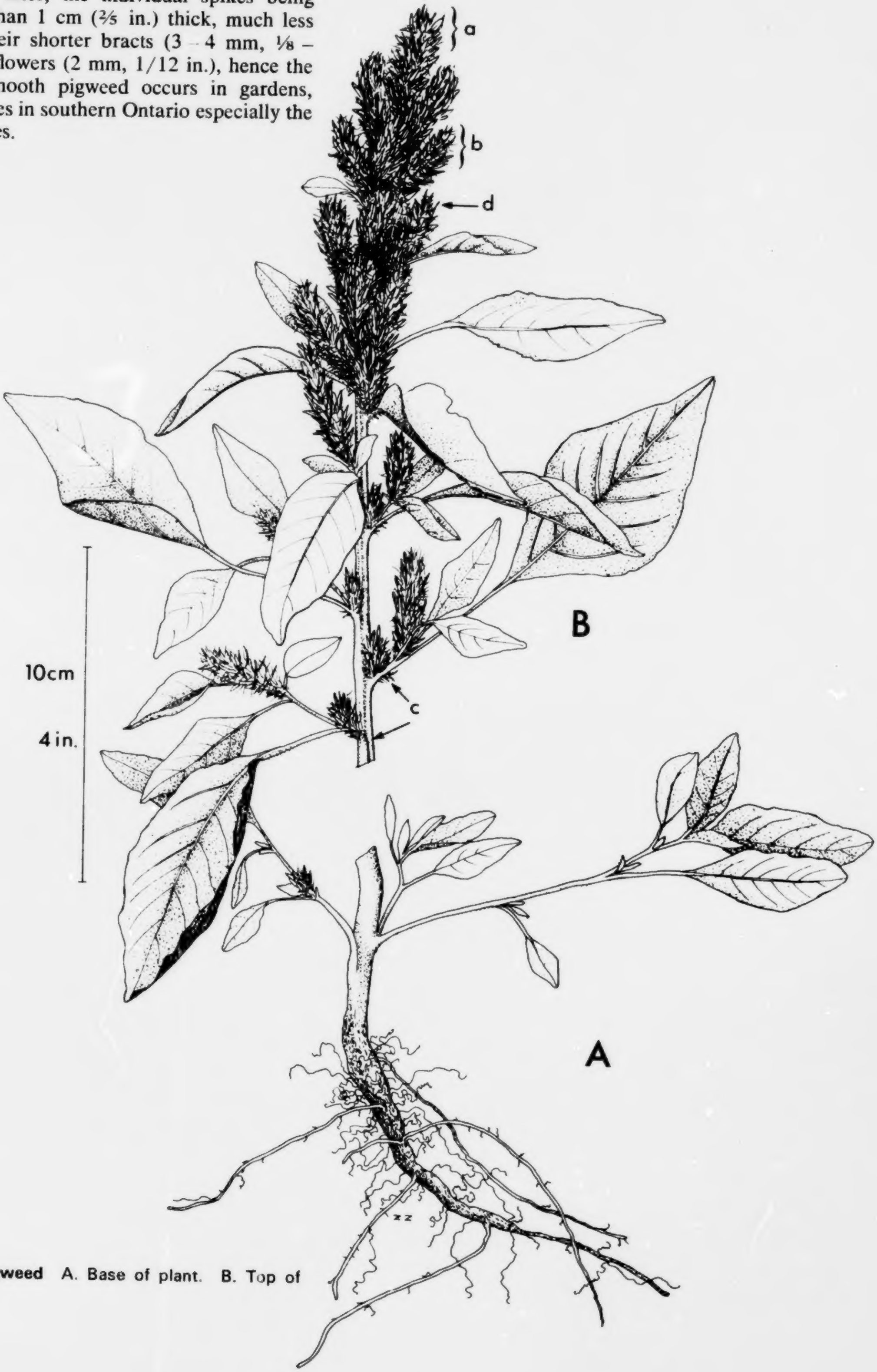
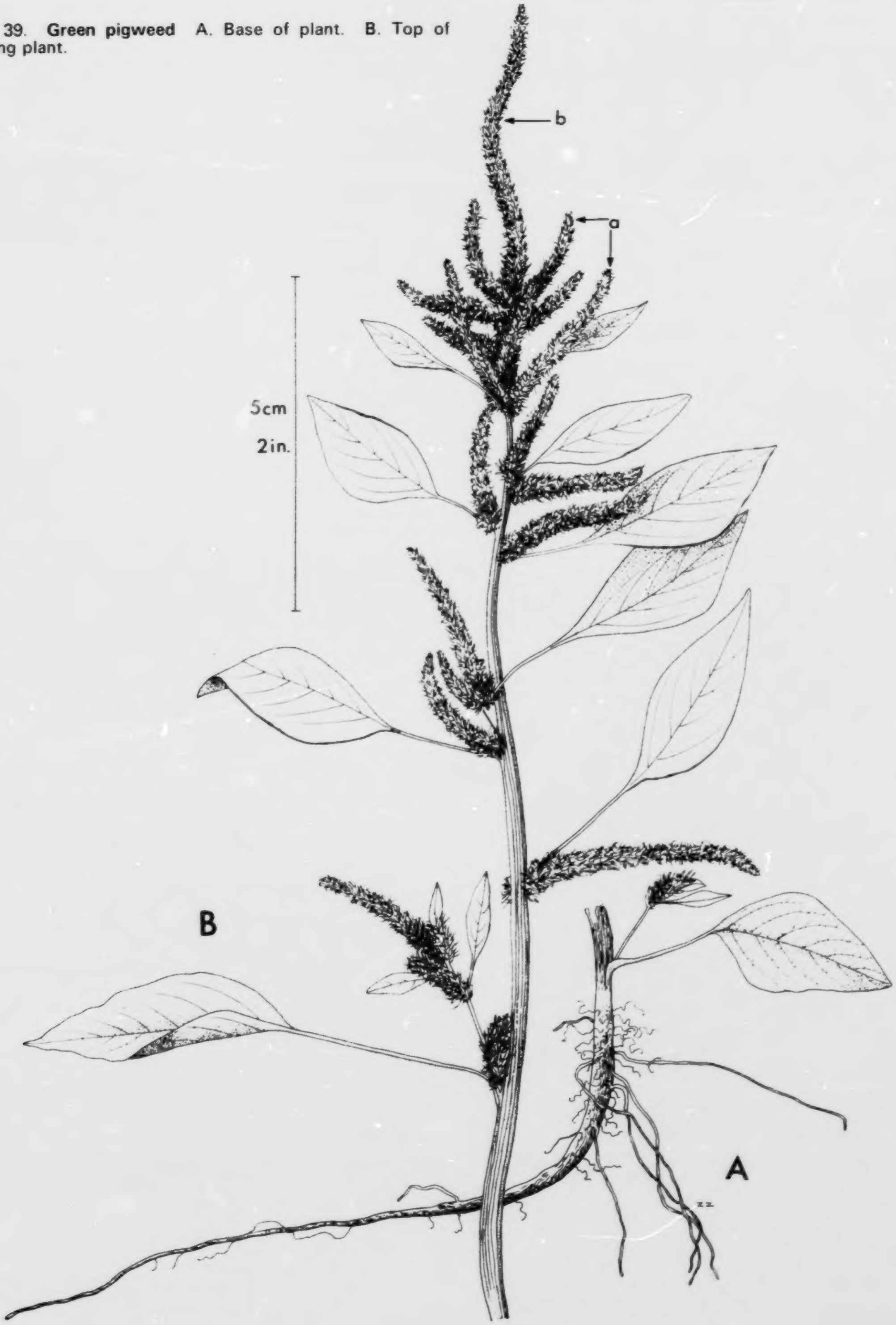


Figure 38. **Redroot pigweed** A. Base of plant. B. Top of flowering plant.

**Green pigweed**, *Amaranthus powellii* S. Wats., (Figure 39) [amarante de Powell, Green amaranth, Powell's amaranth, Powell's pigweed] Very similar to Redroot pigweed in habit of growth, size and general appearance; young plants distinguished from Redroot pigweed by their somewhat shiny green or slightly reddish-green color and somewhat less hairy stem and leaves; older plants have a bright green, thinner, looser inflorescence in which the individual bristly, fingerlike spikes (a) are usually longer (4 – 12 cm, 2 – 5 in.) and tend to point upwards. The terminal spike (b) is much longer (10 – 25 cm, 4 – 10 in.), narrower, about 1 – 1.5 cm (⅖ – ⅗ in.) thick, and either stands erect or frequently hangs over a bit. Flowers and flower bracts are about the same length as in Redroot pigweed, but male flowers usually have only 3 stamens, and the chaff-like sepals are broadest at or below the middle and taper towards the tip.

Green pigweed occurs throughout southern Ontario but is more abundant in the southwest, in some areas it is probably more important than Redroot pigweed.

Figure 39. **Green pigweed** A. Base of plant. B. Top of flowering plant.



# POKEWEED FAMILY (Phytolaccaceae)

**Pokeweed**, *Phytolacca americana* L., (Figure 40) [phytolaque d'Amérique, Inkweed, Pokeberry] Perennial, reproducing only by seed. Stems erect, usually 1 – 2 m (3 – 6½ ft) high but up to 3 m (10 ft) high, smooth and hairless, pinkish to bright red, dying down to the ground each year; these produced from a thick perennial taproot, as much as 10 – 15 cm (4 – 6 in.) diameter and very poisonous; leaves alternate (1 per node), the lowermost quite large, up to 30 – 50 cm (12 – 20 in.) long and about ⅓ as wide, upper leaves shorter and smaller and with shorter leafstalks; all leaves usually dark green above, lighter green to pinkish-green below and with prominent pinkish veins; flowers greenish-white to pinkish in slender racemes at the ends of the main stem and branches. There are no petals, 5 petal-like sepals (a), 5 to 30 stamens but usually only 10, and a ring of 10 pistils in the center; at maturity these form a flat, ring-shaped, juicy, purplish berry with 4 to 10 (usually about 6) sections (b), each with 1 large hard seed. The whole plant, but especially the ripe berries, has an intense purplish-red juice that was used for dyeing.

Pokeweed is a native plant which occurs in meadows, edges of woods and waste areas in the southwestern part of southern Ontario; elsewhere in the province it may persist in old gardens after having been cultivated for the young leafy sprouts which are used as a green vegetable if properly cooked. The plant is poisonous to livestock.

The soft, smooth, fleshy texture of leaves and young stems and the absence of an ocrea at the base of each leaf distinguish Pokeweed from Lamb's-quarters, pigweeds and docks with which it might be confused. The flat, juicy, 10-seeded purplish berries arranged in a spike at the ends of smooth stems and branches distinguish it from wild blackberries and raspberries.

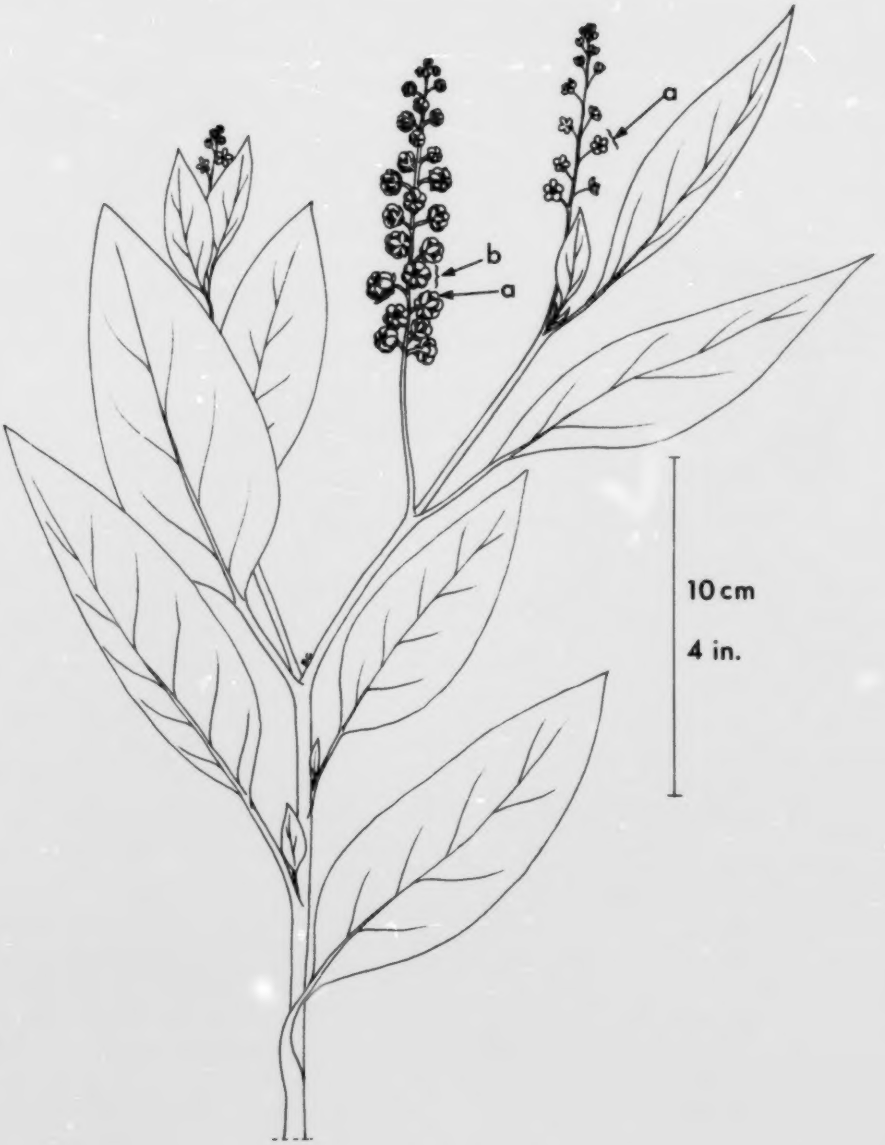


Figure 40. **Pokeweed**

# PURSLANE FAMILY (Portulacaceae)

**Purslane**, *Portulaca oleracea* L., (Figure 41) [pourpier potager, Portulaca, Pursley, Pusley, Pussley, Wild portulaca] Annual, reproducing only by seed. A low-growing or prostrate plant with succulent reddish stems, thick leaves and small flowers. Stems and leaves flat on the ground or slightly raised, 2 – 3 cm (1 in.) high; stems very fleshy or watery, smooth, reddish-green to purplish-red, repeatedly branched and often forming circular mats 30 – 60 cm (1 – 2 ft) diameter or larger; cotyledons (seed leaves) of emerging seedlings 2 – 5 mm (1/12 – 1/5 in.) long, and half or less wide, thick, fleshy and reddish-green on a bright red stalk; leaves mostly alternate (1 per node) except the first few apparently opposite (2 per node), and those near the tips of branches crowded together; all leaves flat but thick and fleshy, deep green to reddish-green, broadest near the rounded or squared tip and narrowed towards the base, completely hairless; flowers (a) small, 5 – 10 mm (⅕ – ⅖ in.) across, in axils of stem leaves or near the tips of branches, opening only on bright sunny mornings with 5 small, pale yellow petals which soon fall off, 6 to 10 tiny yellowish stamens and 1 pistil; seedpods nearly spherical, about 5 mm (⅕ in.) diameter, opening by a slit that goes all the way around the seedpod just below the middle so the top part comes off as a lid; seeds numerous, flattened, rounded or somewhat kidney-shaped, about 0.6 mm (1/40 in.) across, black and shiny.

Purslane is one of the most common weeds in gardens throughout Ontario, occurring also in row crops, waste areas and edges of driveways but not surviving under heavy shade and thus rarely seen in grainfields, hay fields or pastures. The very fleshy nature of Purslane enables it to continue flowering and ripening seeds for several days after being hoed or uprooted. Though rarely producing roots from the stem, if even a small portion of the root of an uprooted plant touches the soil, it can grow a new root system and become reestablished.

Purslane is distinguished from similar prostrate plants by its reddish, fleshy stem with watery juice, fleshy, thick, greenish leaves without teeth, small flowers with yellow petals and small inconspicuous spherical seedpods which open with a circular lid, scattering many tiny black seeds. Prostrate pigweed has a tougher stem, thin leaves, and tiny greenish flowers in somewhat spiny clusters in axils of leaves. The prostrate annual spurges have thinner stems and leaves, and all plant parts contain a white milky juice that is never found in Purslane.

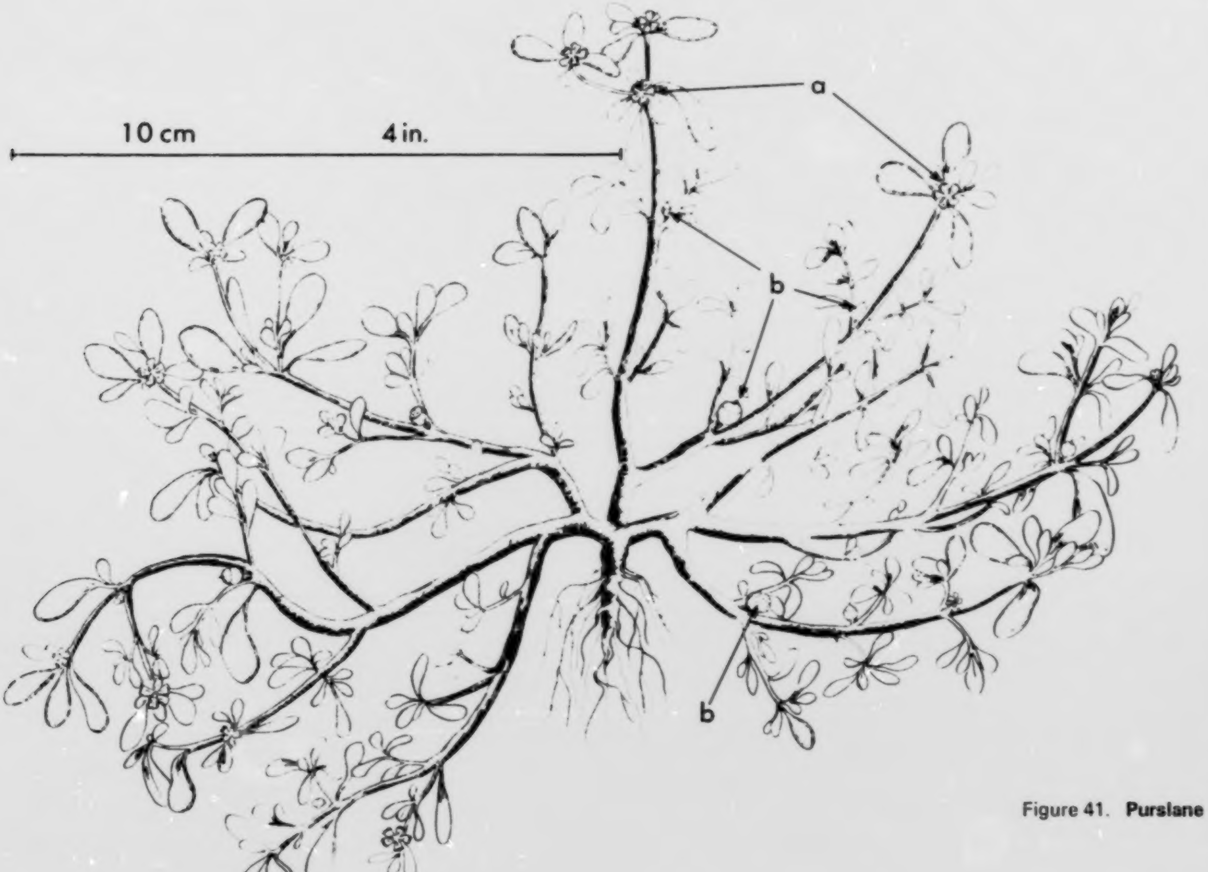


Figure 41. **Purslane**

# CARPETWEED FAMILY (Aizoaceae)

**Carpetweed**, *Mollugo verticillata* L., (Figure 42) [mollugine verticillée, Mollugo], Annual, reproducing only by seed. This prostrate plant is occasionally confused with Purslane but is distinguished by its thinner, yellowish-green stems; thin, flat leaves produced in whorls of 3 to 8 leaves (a) at each node (b); and its clusters of usually 2 to 5 small, pale green to whitish flowers (c) on short stalks (5 – 15 mm, ⅕ – ⅗ in.) from axils of those whorled leaves. The flowers have usually 3 stamens and are followed by small seedpods (d) (3 mm, ⅛ in.) which split lengthwise and have very tiny seeds. Flowers from June to August. Carpetweed occurs in moist sandy or coarse soils in gardens, row crops, waste places and along railways and roadsides throughout Ontario, chiefly in the southern part. It is distinguished from the prostrate spurges, such as Hairy-fruited spurge, by the complete absence of white, milky juice.

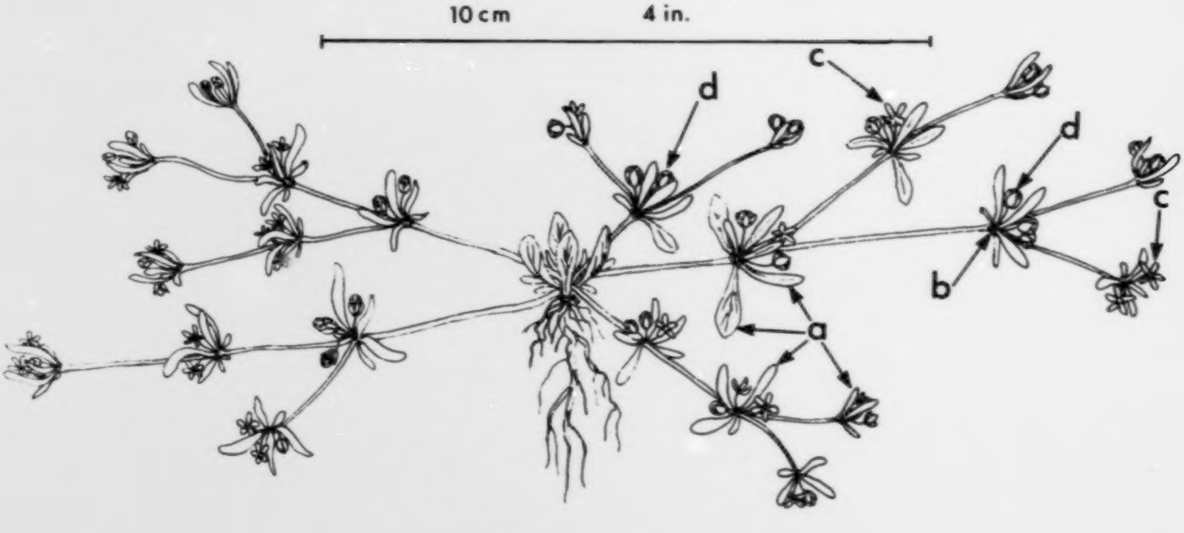


Figure 42. **Carpetweed**

# PINK FAMILY (Caryophyllaceae)

**Corn spurry**, *Spergula arvensis* L., (Figure 43) [spargoute des champs, Spurrey] Annual, reproducing only by seed. Stems single or much-branched, 10 – 50 cm (4 – 20 in.) high, bright green, finely hairy and sometimes slightly sticky; leaves 2 – 5 cm (⅘ – 2 in.) long, very narrow, flat or slightly rounded in cross-section, those on young plants (B) in a rosette-like cluster resembling grass, on older plants in whorls of 6 to 30 or more at each node; flowers small but often very numerous on short stalks (1 – 3 cm, ⅖ – 1⅕ in.) in the upper part of the plant, with 5 green sepals and 5 white petals about 3 mm (⅛ in.) long, usually 10 stamens, and 5 styles on the top of the small oval seedpod; mature seedpod longer than the sepals and splitting into 5 divisions to release the numerous black, flat, round seeds, each of which has a narrow pale or white wing around its margin.

Corn spurry is found in all parts of Ontario but most common on light sandy soils. It is distinguished from other plants in the Pink Family by its whorled leaves; from the bedstraws by its annual habit, its whorls of more than 8 narrow leaves, and its somewhat larger flowers with seedpods containing many small seeds; from the prostrate spurges by the absence of white, milky juice; from Carpetweed by its erect stature and flowers at the ends of the branches rather than in axils of leaves; and young plants are distinguished from those of Russian thistle by their whorled leaves, blunt leaf tips, and the absence of reddish lines on the stem.

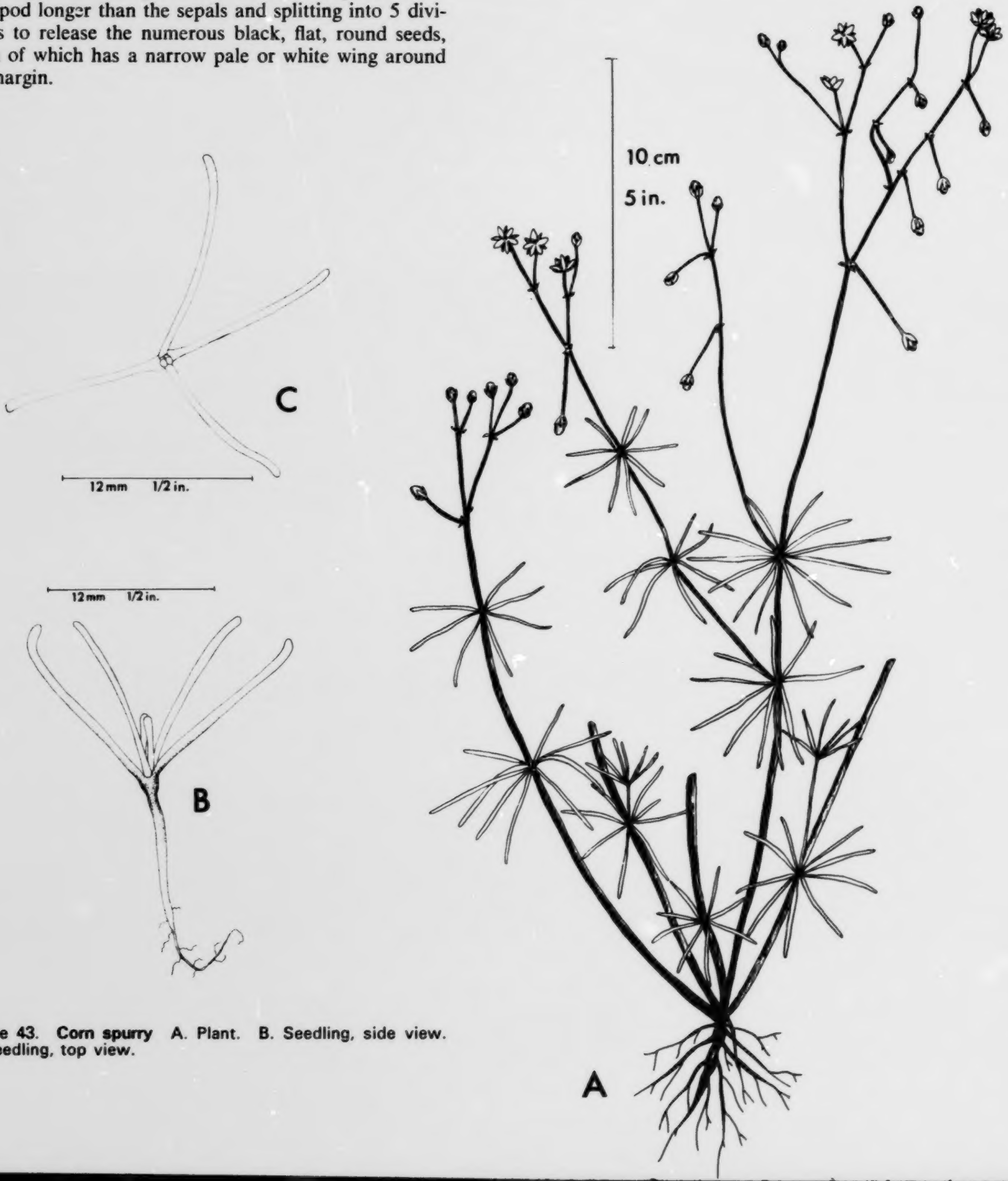
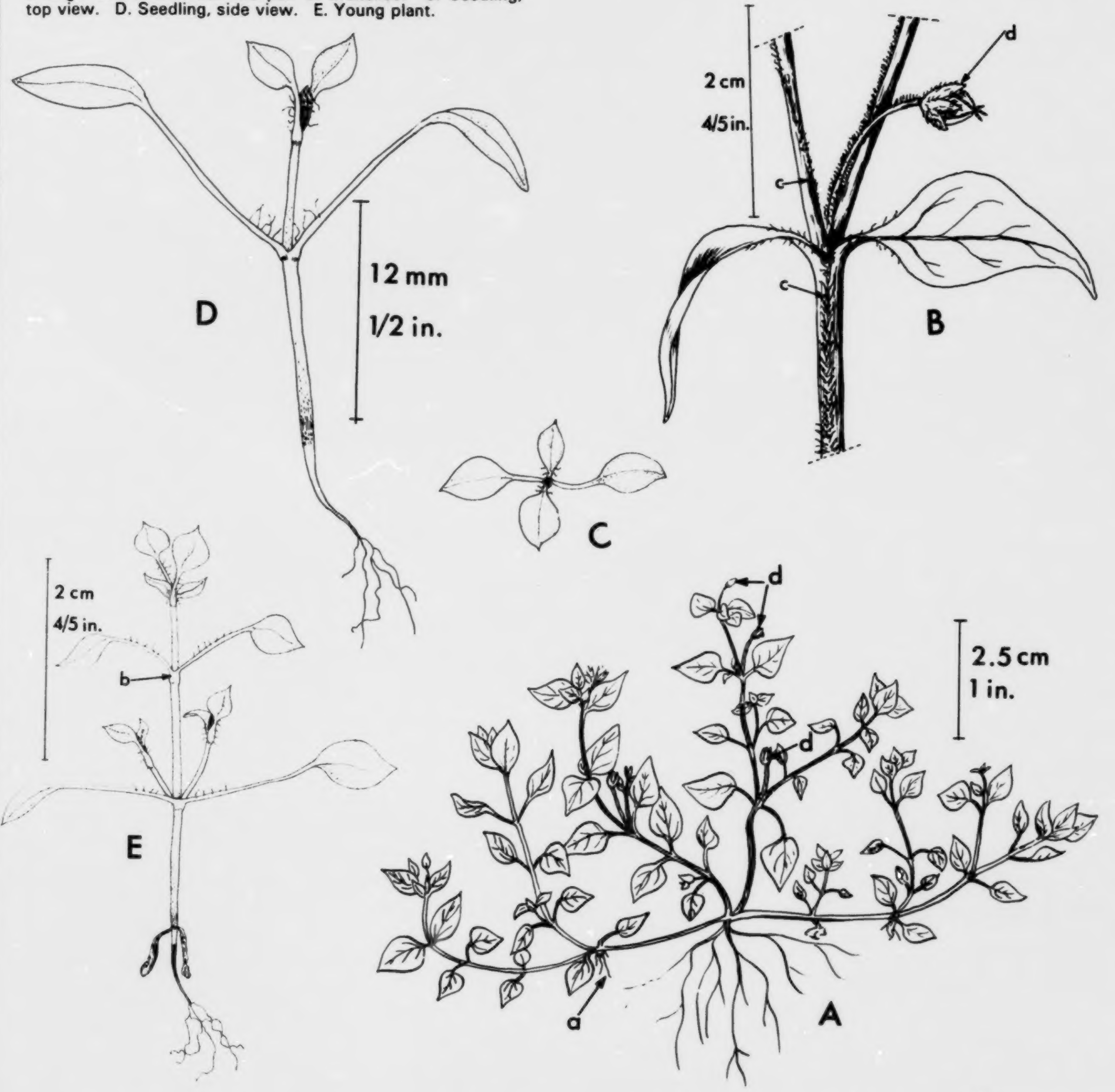


Figure 43. Corn spurry A. Plant. B. Seedling, side view. C. Seedling, top view.

**Chickweed**, *Stellaria media* (L.) Vill., (Figure 44) [stellaire moyenne, Common chickweed] Annual or winter annual, reproducing by seed and by horizontally spreading leafy stems which root at the nodes (a). Stems prostrate, spreading or nearly erect, much-branched, 5 – 50 cm (2 – 20 in.) long, soft, delicate, bright green, with swollen nodes (b), smooth except for a single, narrow (about 1 mm, 1/25 in. wide), lengthwise band of fine white hair (c) on one side of each branch, this band alternating from one side of the branch to the other on successive internodes; stems rooting from nodes which touch the ground and the plant spreading by this means to form dense, matted patches; leaves opposite (2 per node), stalked near the base, stalkless near ends of branches, blades oval with pointed tips, smooth or slightly hairy; flowers small, white (d), produced at tips of stems and in angles between branches (B); petals white, shorter than the green sepals, 5 but each is 2-lobed so the flower may appear to have 10 tiny petals; seedpod somewhat egg-shaped, about as long as the sepals, the tip splitting into 6 tiny teeth and releasing the reddish-brown somewhat spherical seeds which are about 1.2 mm (1/20 in.) diameter. It may start blooming in early spring and produce flowers and seeds throughout the growing season.

Chickweed occurs throughout Ontario in a wide variety of habitats and soil textures. It is one of the most common weeds in lawns but is equally at home in gardens, cultivated fields, pastures, waste areas and even under deciduous forests. It is distinguished from similar plants by its bright green color, ovate-pointed leaves, the single lengthwise band of fine white hair (c) one side of the stem but switching sides above and below each node.

Figure 44. **Chickweed** A. Plant. B. Section of stem with a single flower between the pair of branches. C. Seedling, top view. D. Seedling, side view. E. Young plant.



**Grass-leaved stitchwort,** *Stellaria graminea* L., (Figure 45) [stellaire à feuilles de graminées, Common stitchwort, Narrow-leaved chickweed] Perennial, reproducing by seed and spreading by horizontal stems which root at the nodes (a). Stems nearly horizontal, as much as 60 cm (24 in.) long with numerous leaning or partly erect branches, nearly square, the corners angled and sometimes rough-hairy; leaves opposite (2 per node), narrow, grasslike, up to 5 cm (2 in.) long but rarely over 5 mm (⅕ in.) wide, widest near the base and tapering towards the tip; inflorescence diffuse with long, thin flowering stalks and branches; leaves in the inflorescence (c) much smaller than those down the stem; petals 5, white, about 6 mm (¼ in.) long, longer than the green sepals; seedpods light brown, about as long as the sepals and opening with fine teeth at the tip; seeds dark reddish-brown, rounded to nearly kidney-shaped and about 1 mm (1/25 in.) across.

Grass-leaved stitchwort occurs sporadically throughout Ontario in pastures, meadows, roadsides and waste areas but only rarely in cultivated land, gardens or lawns. It is distinguished from chickweed by its square stem, very narrow leaves, absence of the lengthwise band of hair on the stem, and its distinct perennial habit. **Field chickweed,** *Cerastium arvense* L., (not illustrated) [céraiste des champs], a native perennial resembling Grass-leaved stitchwort, but distinguished by having a more compact habit of growth with its narrow leaves much closer together, the frequent production of densely leafy, short branches near the base of the plant, round stems, and large white flowers with their petals (10 – 20 mm, ⅖ – ⅘ in. long) being 2 to 3 times the length of the sepals.

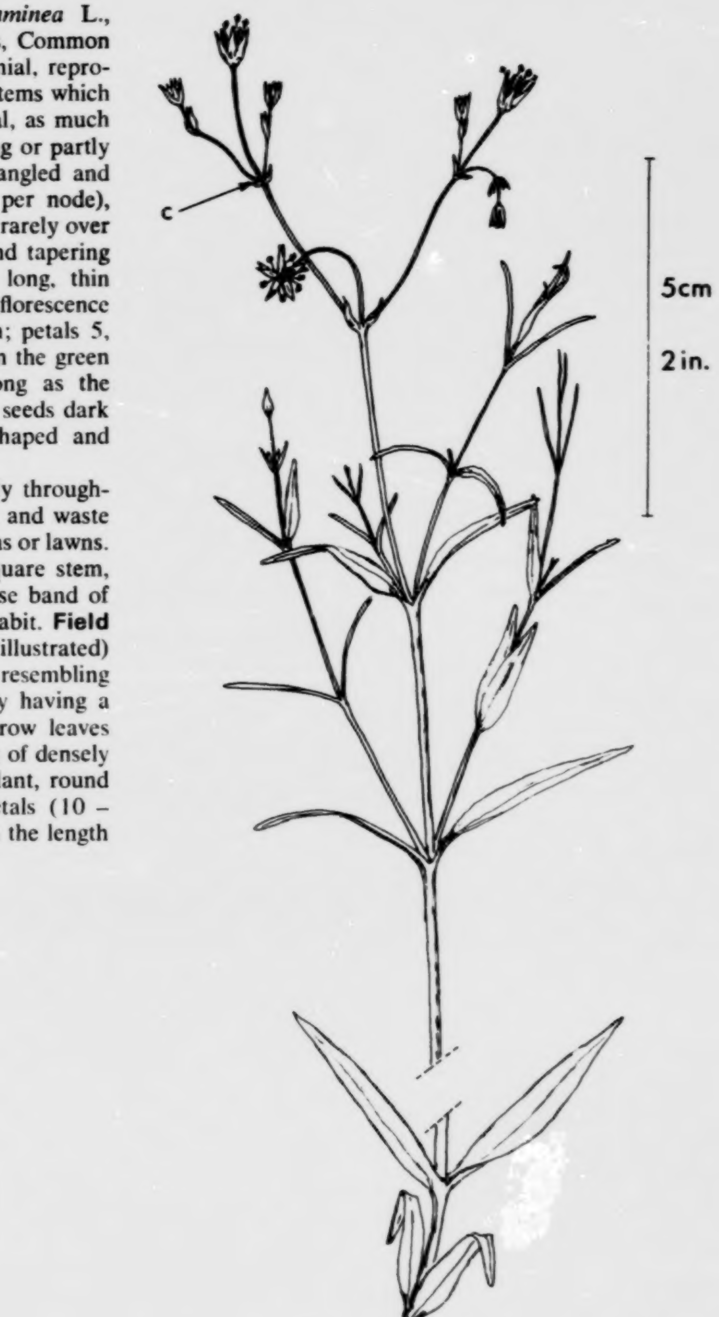


Figure 45. Grass-leaved stitchwort

**Mouse-eared chickweed**, *Cerastium vulgatum* L., (Figure 46, Plate 12) [céraiste vulgaire, *Cerastium fontanum* Baumg. ssp. *triviale* (Link) Jalas] Annual or more usually perennial, reproducing by seed and by horizontal stems which root at the nodes and form dense patches. Stems nearly prostrate, as much as 50 cm (2 ft) long, with short upright branches, or stems erect if growing amongst taller plants, densely hairy, often slightly sticky to the touch, dark green, round in cross-section with swollen nodes; leaves opposite (2 per node), stalkless, ovate (1 – 2 cm, ⅖ – ⅘ in. long) with a pointed tip and covered with hair (a) up to 2 mm (1/12 in.) long (hence the name "mouse-eared"); flowers white, in compact groups or spreading out with long branches and flower stalks to 12 mm (½ in.); sepals 5, green, hairy, (about as long as the 5 white, deeply notched petals), (4 – 6 mm, ⅙ – ¼ in.) long; seedpod cylindrical and straight or slightly curved, 8 – 10 mm (⅓ – ⅖ in.) long, light or straw-colored, opening at the end with 10 small teeth (b) and releasing many, tiny, reddish-brown, roundish to 4-sided seeds about 0.75 mm (1/30 in.) long. Flowering and seed-set continue from late spring until freeze-up in autumn.

Mouse-eared chickweed is common throughout Ontario and occurs in almost any kind of habitat including gardens, lawns, fields, pastures, meadows, wet depressions, rock outcrops, dry sandy areas, and under moist woods. It is one of the most common and persistent weeds of lawns and occasionally is thick enough to be troublesome in gardens and fields. It is distinguished from other chickweeds, Grass-leaved stitchwort and Thyme-leaved sandwort by its hairy stem and stalkless leaves covered with long hair (a) on both surfaces.

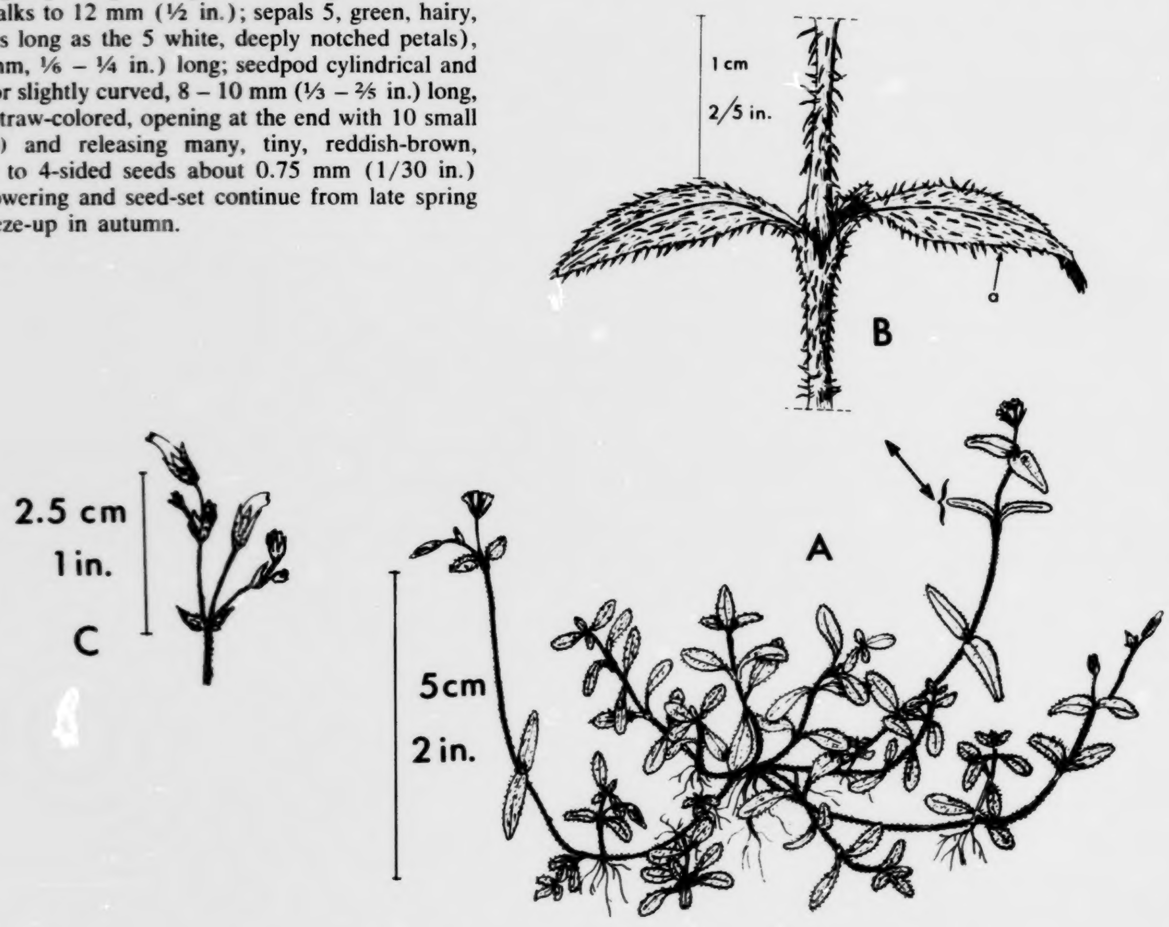


Figure 46. **Mouse-eared chickweed** A. Plant. B. Section of stem with pair of leaves. C. Tip of branch with 2 seedpods.

**Thyme-leaved sandwort**, *Arenaria serphyllifolia* L., (Figure 47) [sabline à feuilles de serpolet, Sandwort] Annual or more frequently winter annual, reproducing only by seed. Stems erect, usually much-branched from near the base, 5 – 25 cm (2 – 10 in.) high, covered with very short inward-curved or nearly flat-lying hair which gives a somewhat rough texture and a bluish-green color; leaves small, opposite (2 per node), stalkless, slightly rough-hairy, ovate with a pointed tip, 4 – 8 mm (⅙ – ⅓ in.) long and usually shorter than the length of stem between pairs; flowers very small, 2 – 3 mm (1/12 – ⅛ in.) long, greenish (the tiny white petals too small to show), on very slender stalks up to 10 mm (⅖ in.) long in branching inflorescences; seedpod ovoid, about 3 mm (⅛ in.) long, opening at the tip and releasing many, extremely fine (0.5 mm, 1/50 in.) seeds. Flowers from late spring to late summer but is dry and shriveled away by fall.

Thyme-leaved sandwort occurs throughout Ontario in dry sandy soils. It is most common in fall rye and winter wheat where its winter annual habit is an advantage; but it also occurs in spring-sown crops, gardens, roadsides, orchards, sandy beaches and in rocky places. It is distinguished by its bluish-green appearance, very small leaves, slightly rough stems and leaves, and tiny greenish flowers.

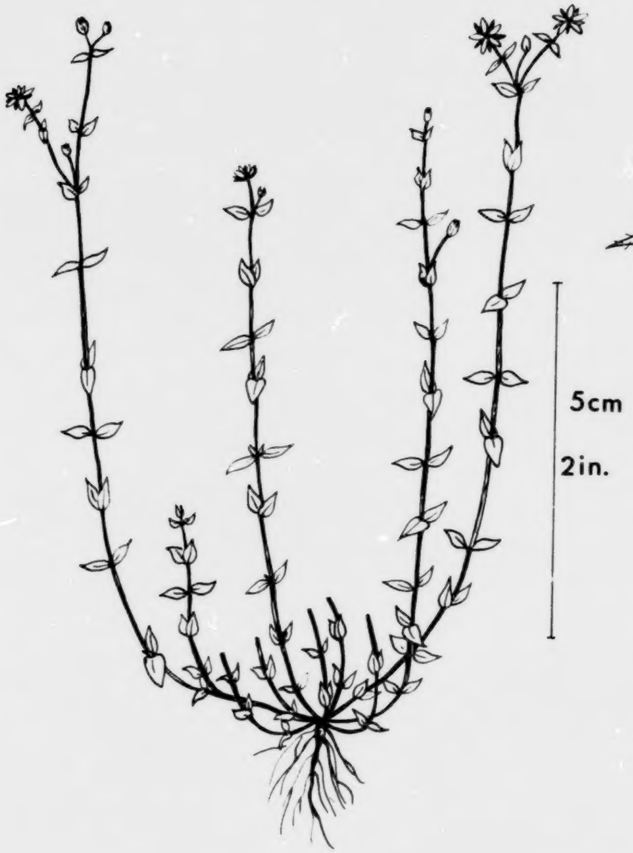


Figure 47. **Thyme-leaved sandwort**

**Purple cockle,** *Agrostemma githago* L., (Figure 48) [nielle, Corn cockle] Annual or sometimes biennial, reproducing only by seed. Stems erect, 30 – 120 cm (1 – 4 ft) high, hairy, with swollen nodes; leaves opposite (2 per node), stalkless, linear to lance-shaped, 5 – 13 cm (2 – 5 in.) long, narrow and silky hairy; flowers on long stalks with 5 large, purple or purplish-red petals with black spots, 5 green sepals united for ⅓ to ½ their length forming a calyx tube (a) 12-18 mm (½ – ¾ in.) long; the calyx lobes (sepal tips) (b) 2 – 4 cm (⅘ – 1⅗ in.) long, narrow and projecting between and past the petals (c); seedpods expand inside the calyx tube; the calyx tube having 10 prominent, hairy, green ribs; the mature seedpod inside the calyx being smooth, hairless and orange-brown, and opening with 4 or usually 5 teeth at the top; seeds purplish-black, rounded-angular, about 3 mm (⅛ in.) across and densely covered with tiny, sharp bumps.

Purple cockle was a very common weed in southern Ontario in the days of horse-drawn farm implements but, with the change in farming techniques, it has largely disappeared. However, it still occurs sporadically in cultivated fields in the central and western parts of southern Ontario. Though rare, it is important because its seeds are poisonous to livestock and fowl so should be eliminated from feed grain. It is distinguished by its silky hairy stems and narrow leaves, large purple flowers and large purplish-black seeds.

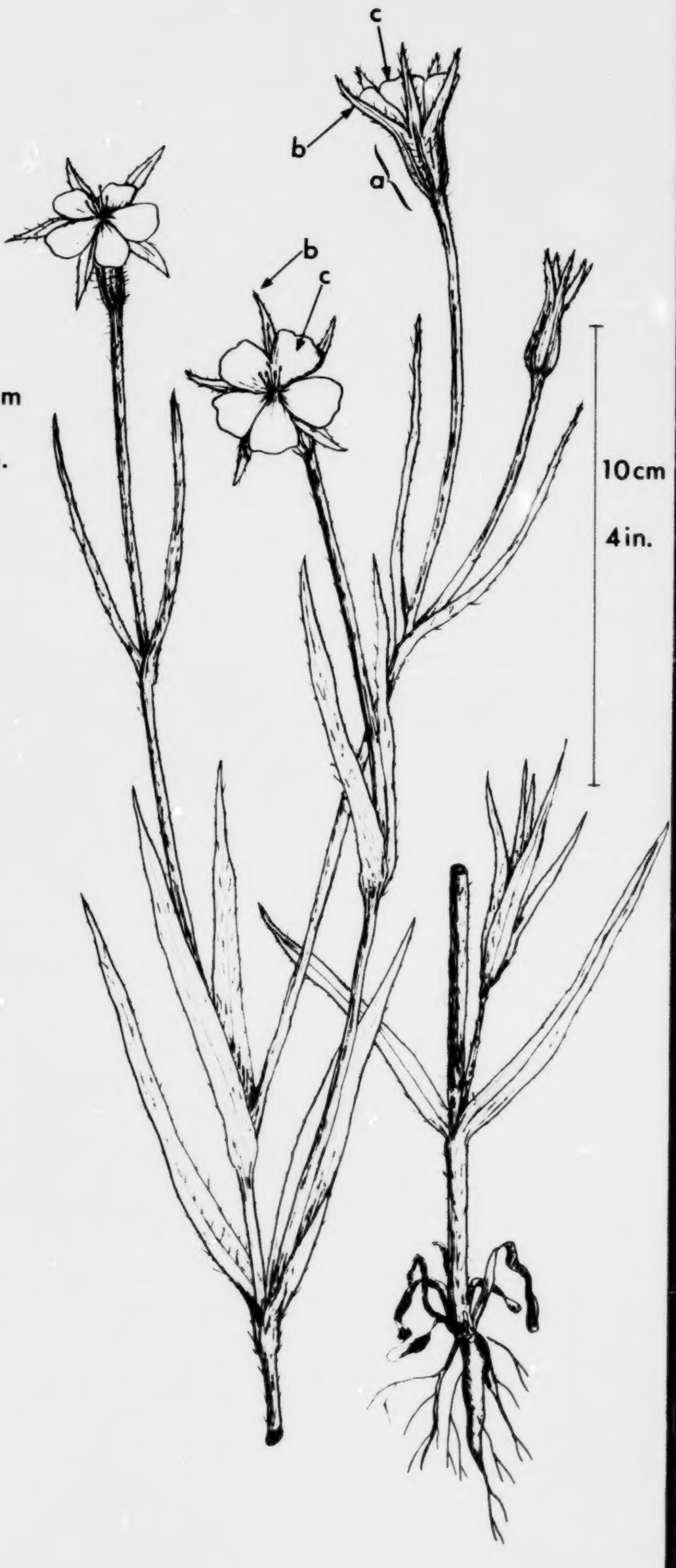


Figure 48. **Purple cockle**

**White cockle,** *Lychnis alba* Mill., (Figure 49) [lychnide blanche, Evening lychnis, White campion] Biennial or short-lived perennial, reproducing only by seed. Stems erect, 30 – 120 cm (1 – 4 ft) high, round, swollen at nodes, hairy but not sticky, usually several from a coarse branching crown on a single, fleshy taproot (B). Seedlings pale yellowish-green; all leaves opposite (2 per node), the first few pairs usually appearing as a rosette, or on an elongating stem (as in A) when partly shaded by other plants, softly hairy on both surfaces with longer hair on the edges of the leafstalks; margins of leaf blades somewhat wavy (b) or wrinkled; middle and upper leaves stalkless, entire (without teeth), hairy, 2.5 – 10 cm (1 – 4 in.) long, lance-shaped to elliptic but tapering to a point; flowers white, large and showy, unisexual, all flowers on 1 plant with 5 united sepals, 5 deeply lobed petals and either 10 stamens but no pistil, or 1 pistil with 5 styles (c) but no stamens; sepals 5, united along their edges to form a tubular calyx with 5 short lobes at the tip; calyx cylindrical in male flowers, usually purplish-green and distinctly 10-veined lengthwise; narrowly ovoid at first in female flowers (d) but becoming wide-ovoid to nearly spherical as the seedpod expands inside, green, with 5 very prominent lengthwise veins (e) lined up with the 5 pointed lobes (f) and usually 3 much fainter veins (g) between the pairs of prominent ones; seedpod firm, 10 – 15 mm (⅖ – ⅗ in.) long, smooth and hairless but usually remaining surrounded by the calyx tube, opening by 10 short teeth (h) at the tip, releasing many small (1.2 mm, 1/20 in. across), kidney-shaped, grayish-orange, slightly rough seeds. Flowers and sets seed all summer.

White cockle is common in pastures, roadsides, waste areas, gardens and occasionally in cultivated fields throughout southern Ontario but is comparatively rare in the north and northwest. It is distinguished from Purple cockle by its broader leaves and white or pinkish flowers with short calyx lobes; from Cow cockle, Bouncingbet and Bladder campion by its hairy leaves and stem; and from Night flowering catchfly by its comparative lack of stickiness, biennial or short-lived perennial habit, unisexual flowers, seedpod with 5 styles (c) and opening by 10 teeth (h), and the short lobes (f) and weakly branching veins (g) on the calyx tube.

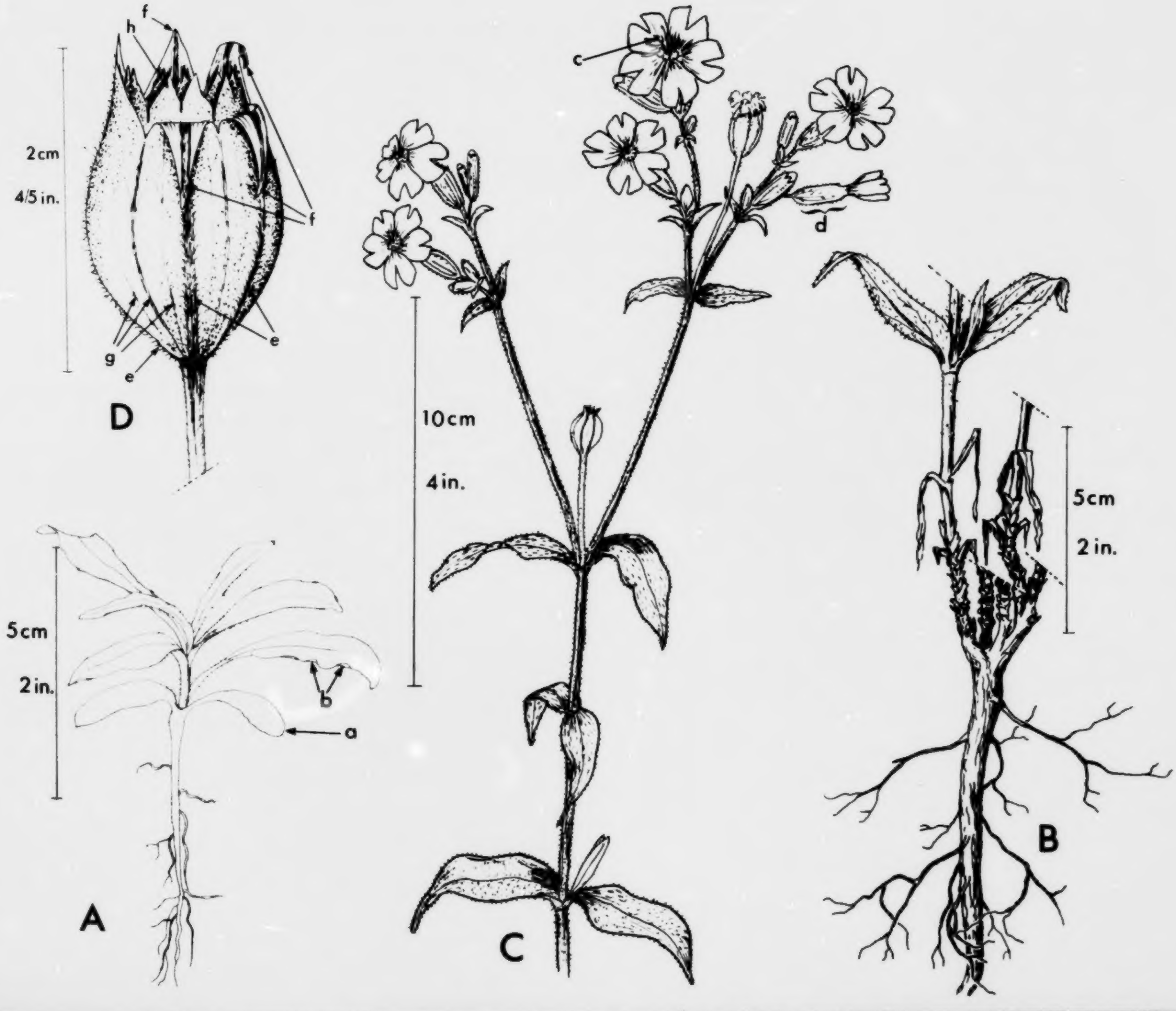
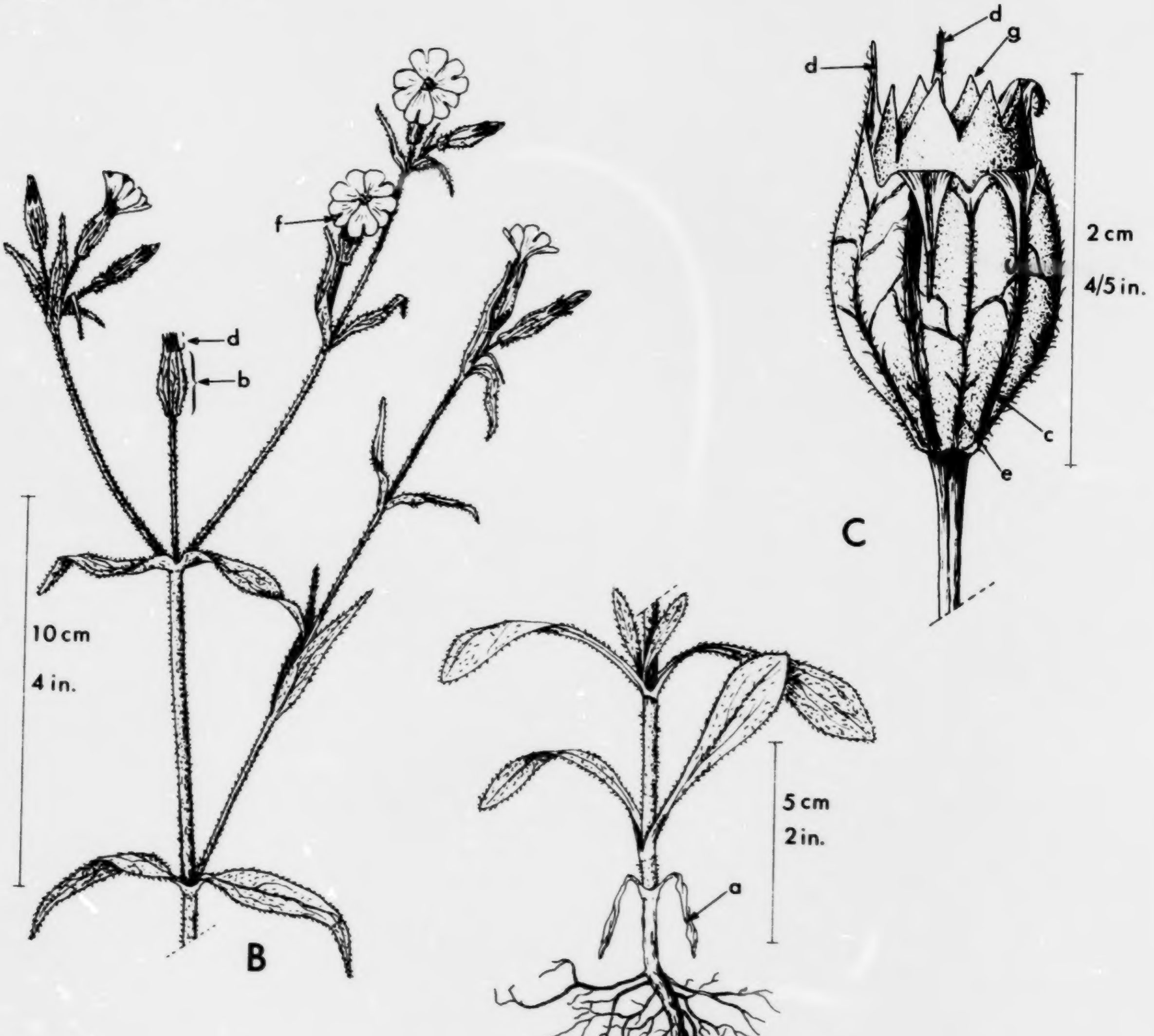


Figure 49. **White cockle** A. Seedling with 3 pairs of true leaves. B. Base of 2-year-old flowering plant. C. Flowering stem of plant with female flowers. D. Seedpod.

**Night-flowering catchfly**, *Silene noctiflora* L., (Figure 50) [silène noctiflore, Sticky cockle] Annual or sometimes winter annual, reproducing only by seed. Very similar in general appearance to White cockle; seedlings nearly identical (Figure 49A) but are somewhat sticky-hairy; stems of flowering plants 20 cm – 1 m (8 – 40 in.) high, erect, often much-branched near the top but always single (A) at the ground surface because they start from seed each year, often with remnants of the cotyledons (seed leaves) (a) still visible; and the root tapering downwards as a slender taproot with fine branches; leaves opposite (2 per node), tapering towards both ends, lower ones widest near the tip (A), middle and upper ones widest nearer the stem (B); upper leaves and stem branches densely sticky-hairy; flowers showy, usually opening in the evening but often open throughout the next day as well; sepals light green, united as a calyx tube (b) with 5 prominent veins (c) lined up with the 5 long-tapered teeth (d) and 5 less prominent but distinctly branched veins (e); petals white, creamy-white or pinkish, flaring outwards in a circle 1 – 3 cm (⅖ – 1⅕ in.) diameter, each petal deeply lobed (f); flowers bisexual, having 10 stamens and 1 pistil although rarely some may be unisexual; pistil with 3 long styles, becoming an ovoid seedpod which usually opens with 6 teeth (g) and scatters many kidney-shaped, small (0.8 – 1 mm, 1/30 – 1/25 in.), grayish-orange, rough seeds.

Night-flowering catchfly grows in much the same situations as White cockle but is more common in cultivated fields and is more widespread through northern Ontario. It is distinguished by its dense covering of sticky hair on upper stems, leaves and calyx, its distinctly branching veins (c, e) and long-tapered teeth of the calyx (d), its seedpod opening by usually 6 teeth (g), and its annual or winter annual habit.

Figure 50. **Night-flowering catchfly** A. Base of annual plant. B. Flowering stem. C. Seedpod.



**Bladder campion**, *Silene cucubalus* Wibel, (Figure 51) [silène enflèe, Cow bell, Rattleweed, *Silene latifolia* (Mill.) Britten & Rendle] Perennial, reproducing by seed, by rooting of short underground branches which slant outwards from the crown, and from pieces of crown cut off by implements. Root system a coarse, whitish taproot with numerous, deeply penetrating and widely spreading wiry branches, very persistent (tolerant of cultivation); stems 30 – 60 cm (1 – 2 ft) high, erect or spreading, smooth, light green to whitish with a waxy bloom (fine powdery coating), usually swollen at the nodes; leaves opposite (2 per node), narrowly oval, tapered, deep green or whitish with a waxy bloom; flowers in branching clusters; sepals united and forming a bladder-like calyx (a), light green or pinkish with darker green or purplish veins and 5 very short teeth at the end; petals 5, deeply lobed, white to pinkish, about 1.5 cm (⅗ in.) across when open, soon curling up and shriveling after pollination; seedpods nearly spherical, 1 cm (⅕ in.) or less long, enclosed by the loose, papery, bladder-like calyx; seeds grayish, kidney-shaped, 1.5 mm (1/16 in.) across, rough with tiny warty bumps. Flowers from mid-June to September.

Bladder campion occurs throughout Ontario in medium to coarse soils in well-drained locations. It is common in pastures, waste places, roadsides, open woods, gardens, lawns and hedges, but is rather uncommon in regularly cultivated fields. It is easily distinguished by its smooth, hairless, waxy texture throughout, and the smooth, papery, bladder-like calyx enclosing the small seedpod.

**Biennial campion**, *Silene csersi* Baumg., (not illustrated) [silène de Cserei], nearly identical to Bladder campion, the most important difference being that, instead of being a perennial, it is a biennial which forms a rosette of leaves the first year, then flowers, sets seed and dies in the second year. Biennial campion usually also has slightly larger and thicker leaves, smaller calyx and an egg-shaped seedpod which protrudes slightly from the calyx at maturity. It is not common in Ontario, occurring at only a few places along railway lines.

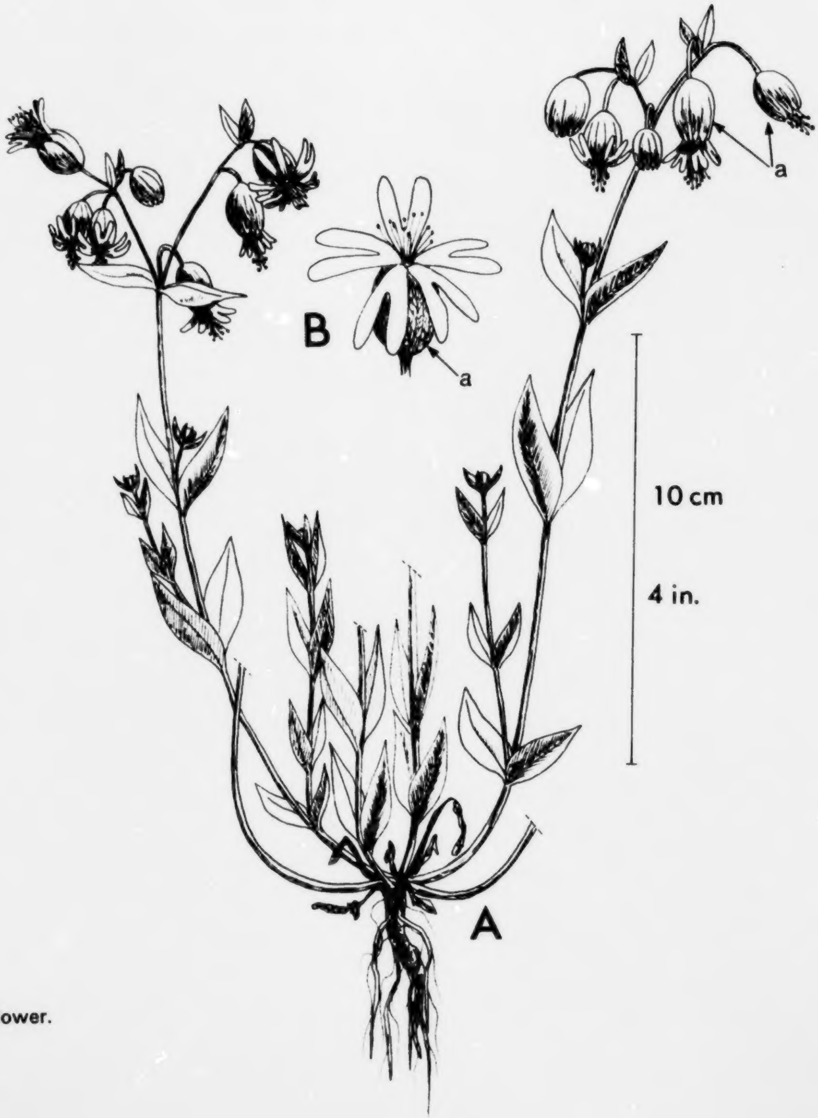


Figure 51. **Bladder campion** A. Plant. B. Flower.

**Bouncingbet,** *Saponaria officinalis* L., (Figure 52) [saponaire officinale, Bouncing Bet, Soapwort] Perennial, reproducing by seed and by spreading underground stems, often forming dense patches. Underground parts very coarse and almost woody. Stems 30 – 120 cm (1 – 4 ft) high, smooth, very leafy; leaves opposite (2 per node), ovate or elliptic, rounded or tapered towards both ends, with 3 to 5 prominent lengthwise veins on the underside; flowers bright, showy, clustered in a thick short-branched inflorescence; sepals united in a tubular calyx with many (usually 20), fine, lengthwise veins and 5 very short teeth (a), petals 5 or many in "doubled flowers", usually fragrant; seedpods cylindrical, enclosed in the calyx; seeds dull black, roundish kidney-shaped, 1.5 mm (1/16 in.) across, and rough. Flowers from midsummer to late autumn.

Bouncingbet is common throughout southern Ontario occurring along roadsides, in waste places and old building sites, but only occasionally in fields and pastures. The leaves and seeds of Bouncingbet contain saponins (soap-like natural chemicals) which can be poisonous to livestock. Indeed, the leaves were used by early settlers as a poor but effective substitute for soap. It is distinguished by growing in thick patches, its dense inflorescence, and smooth, cylindrical calyx tube with many veins.

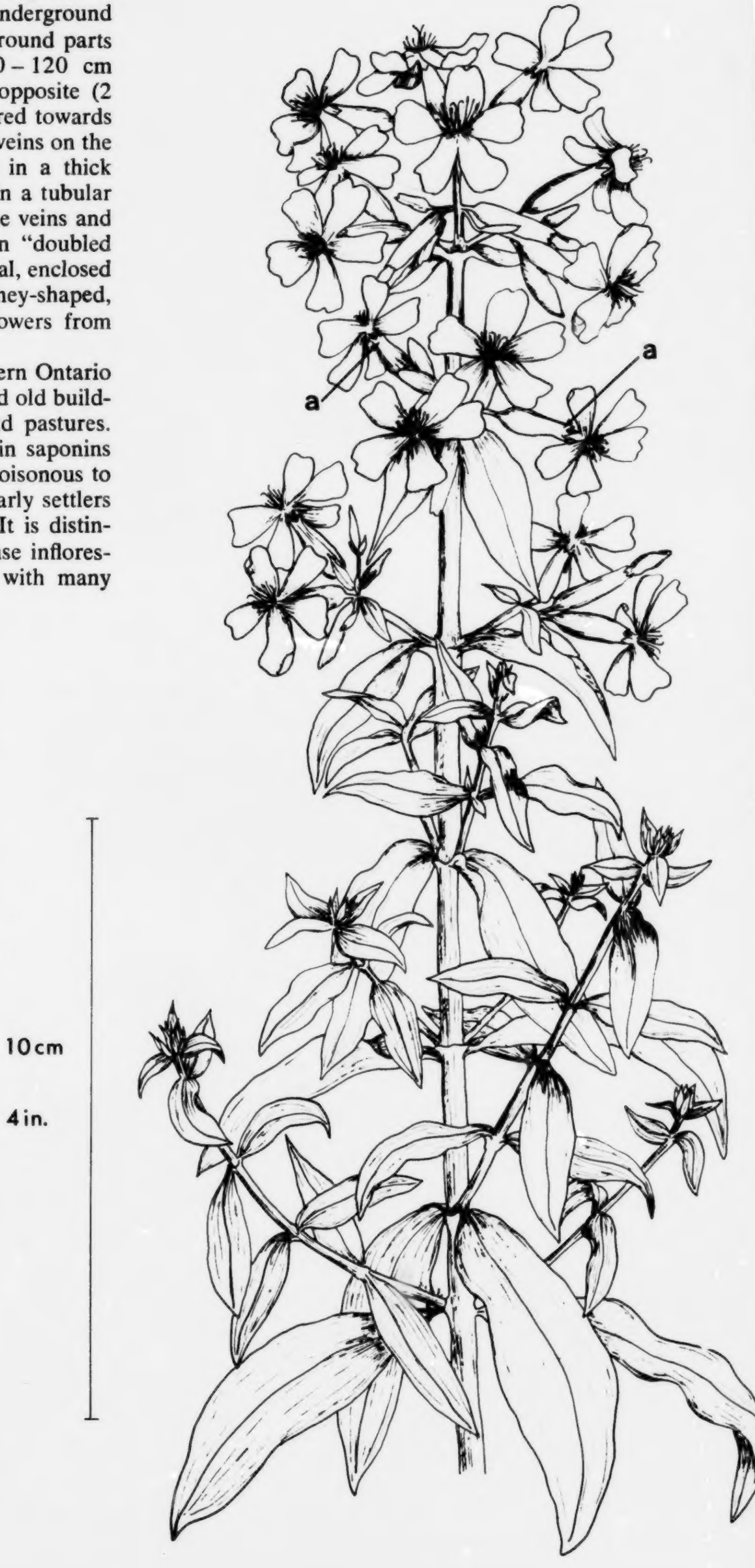


Figure 52. **Bouncingbet**

**Cow cockle**, *Saponaria vaccaria* L., (Figure 53) [saponaire des vaches, China cockle, Cow-herb, *Vaccaria pyramidata* Med., *V. segetalis* (Neck.) Garcle, *V. vulgaris* Host] Annual, reproducing only by seed. Stems 10 – 60 cm (4 – 24 in.) high, erect, usually much-branched in the upper part, smooth with swollen nodes; leaves opposite (2 per node), 5 – 10 cm (2 – 4 in.) long, tapered to a pointed tip, rounded towards the stalkless base, sometimes somewhat clasping the stems, thick and a bit fleshy in texture, very smooth; flowers showy in a much-branched inflorescence; sepals united forming an angular calyx with 5 prominent ribs (a); petals 5, pink, spreading 10 – 20 mm (⅖ – ⅘ in.) diameter; seedpods flask-shaped inside the sharply 5-angled calyx, opening with 4 to 6 teeth; seeds purplish-black, nearly spherical, 2 – 2.5 mm (1/12 – 1/10 in.) diameter; flowers from mid-July to September by which time the plant is mature, dull yellowish, very brittle, breaks and rolls with the wind, scattering its seed.

Cow cockle occurs at scattered locations throughout Ontario most frequently along railroads and in waste areas near feed mills, but in recent years appearing more frequently in grainfields. It is distinguished from other members of the Pink Family by its annual habit, the bases of the leaves rounded or partly clasping the stem, the bright pink petals and the strongly 5-angled calyx (a). Like Bouncingbet, Cow cockle seeds and foliage also contain saponins (soap-like chemicals) and are considered potentially poisonous to livestock.

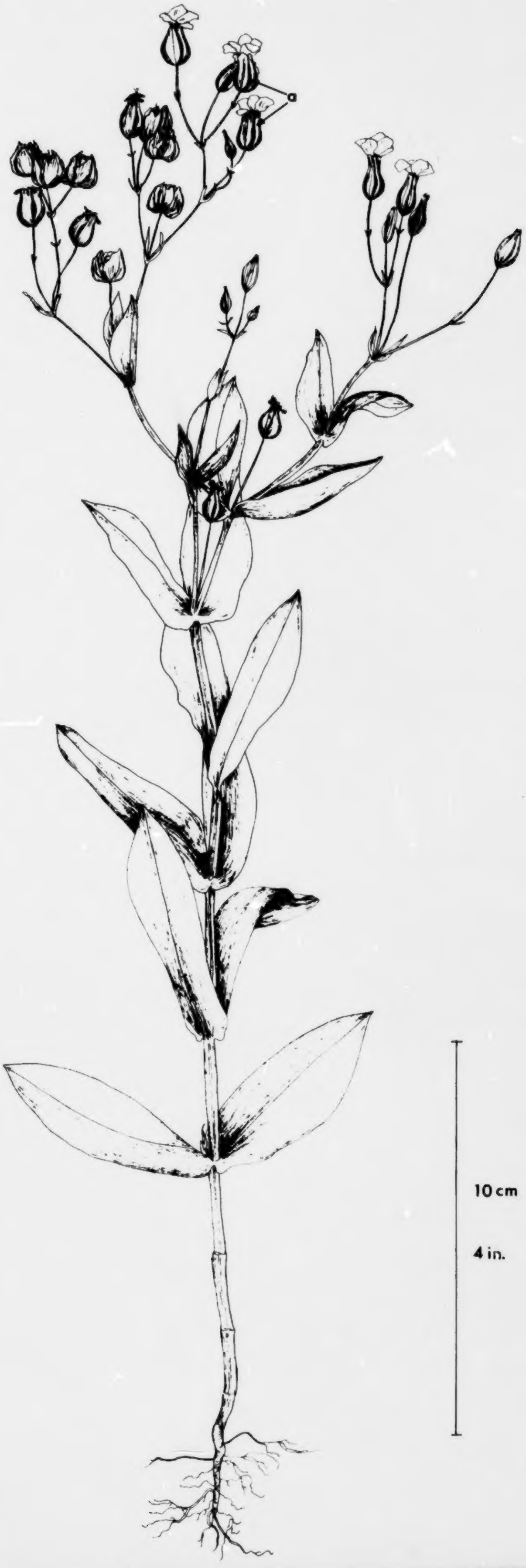


Figure 53. **Cow cockle**

# BUTTERCUP FAMILY (Ranunculaceae)

**Tall buttercup,** *Ranunculus acris* L., (Figure 54, Plate 18) [renoncule âcre, Field buttercup, Meadow buttercup, Tall crowfoot, Tall field buttercup] Perennial, reproducing only by seed. Stems 1 or several from a thick rootstalk with numerous, spreading, coarse, fibrous roots, erect, 30 – 100 cm (12 – 40 in.) high, branched in the upper part, hairy throughout; leaves basal and alternate (1 per node) on the stem, softly hairy, very deeply lobed and toothed; basal and lower leaves long-stalked (a), the blade deeply divided into 5 main lobes (b) palmately arranged (like fingers on a hand), each of the 5 lobes irregularly jagged or coarsely toothed (c); middle leaves with similar shape but nearly stalkless; upper leaves progressively smaller with fewer and smoother lobes; the base (d) of each leafstalk flattened and partly surrounding the stem at each node; flowers bright yellow, about 2 – 3 cm (⅘ – 1⅕ in.) diameter, grouped on long stalks in a much-branched inflorescence; sepals 5, green and small; petals 5; stamens numerous around the cluster of tiny pistils; after the petals fall, the cluster of seeds (e) is nearly spherical with each seed about 3 mm (⅛ in.) long, flattened, egg-shaped in outline with a short hooked tip. Flowering and setting seed from late May throughout the summer and fall.

Tall buttercup is one of the most common weeds pastures, meadows, and roadsides throughout Ontari It can grow in a wide variety of habitats from low we meadows, to rich woods, to coarse gravel pits and rai road cinders. There are many species of native an introduced buttercups, but only Tall buttercup is of wid importance as a weed. It is distinguished by its erec habit, the lower and middle leaves being similar i appearance, and the leaves deeply lobed but not com pletely divided into sections with distinct stalks. Th buttercups have a bitter, acrid juice which causes sever pain and inflammation when grazed by livestock. The are normally avoided, but when other feed become scarce they may be grazed with serious consequences.

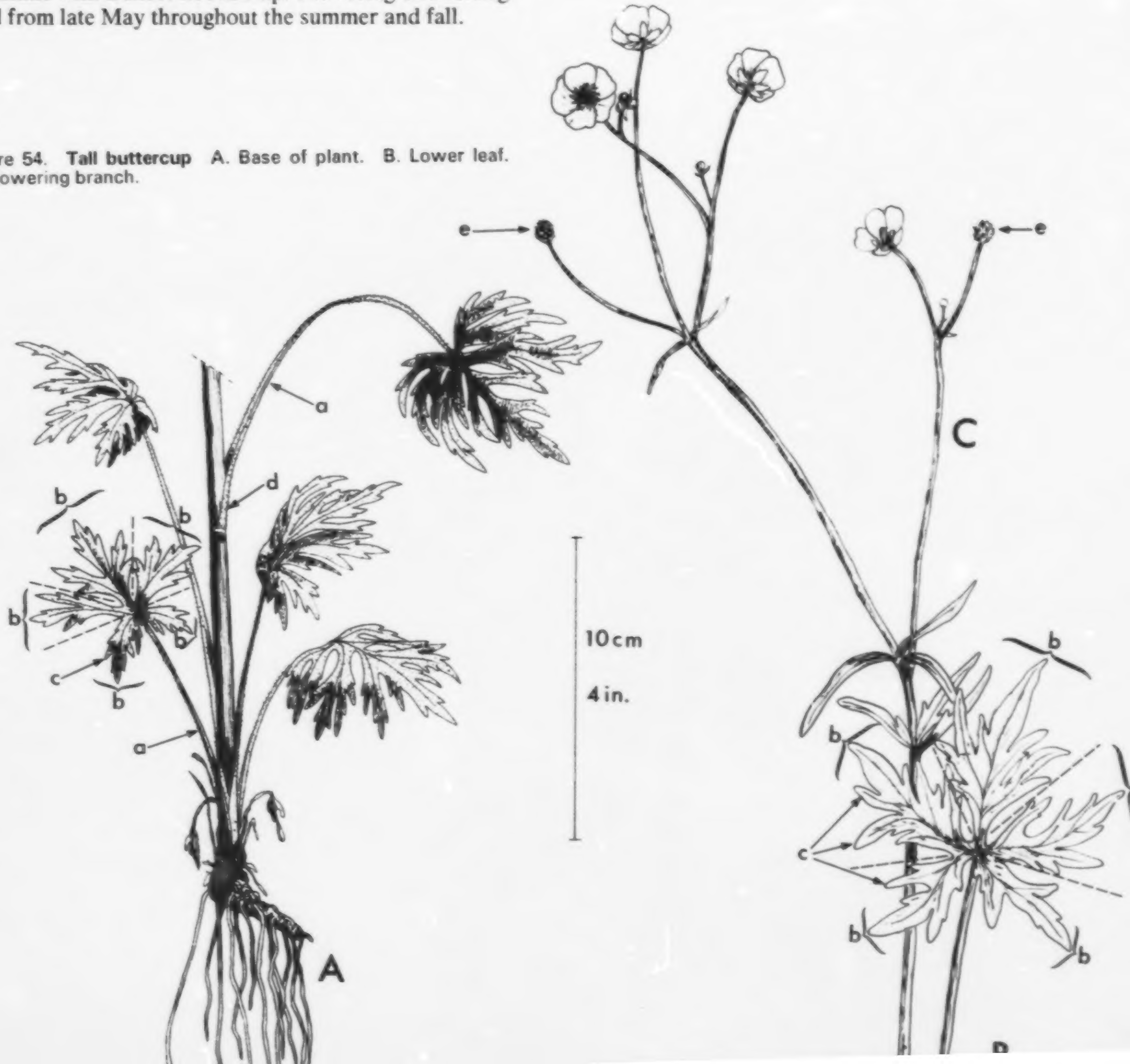
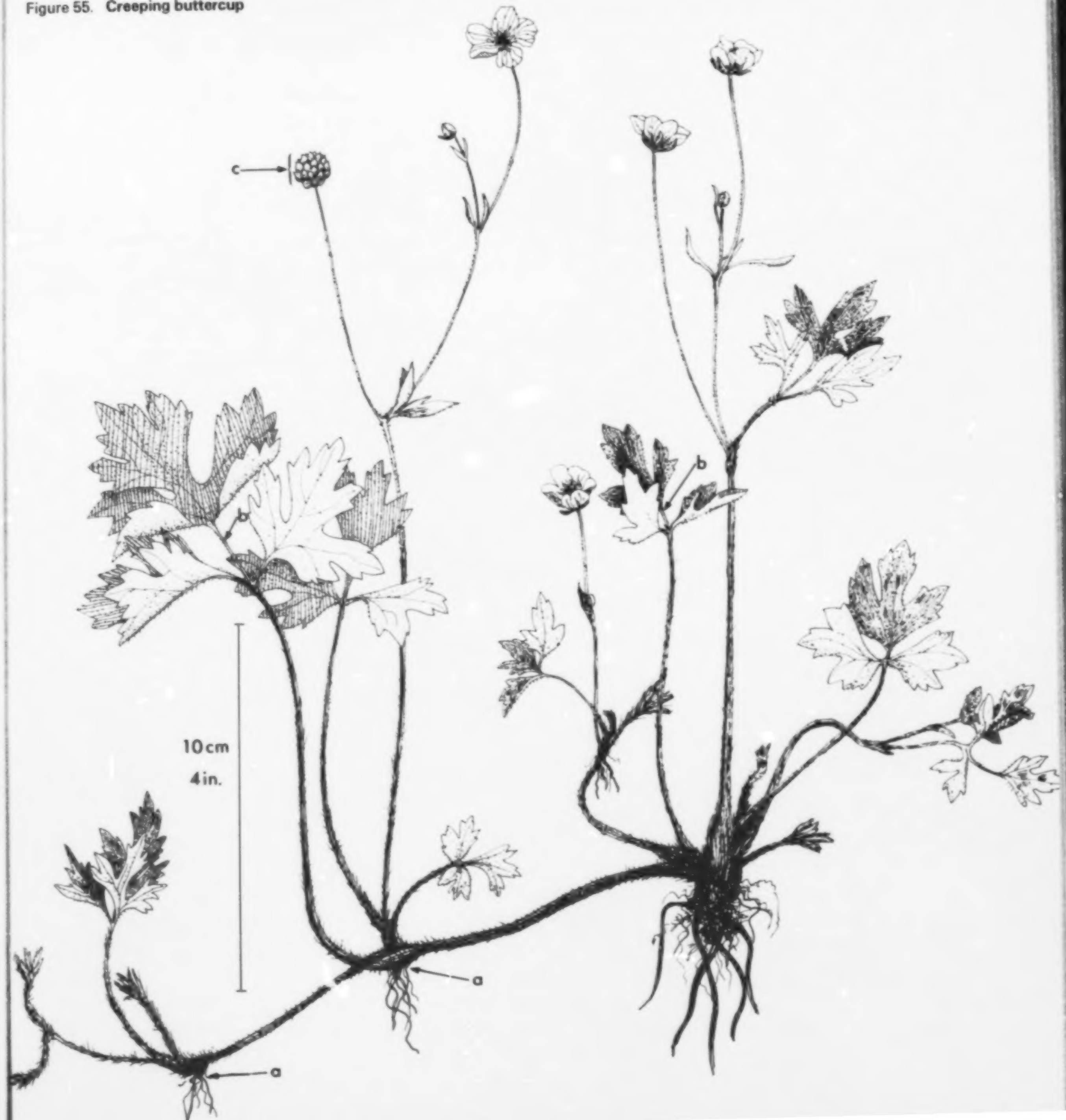


Figure 54. **Tall buttercup** A. Base of plant. B. Lower leaf. C. Flowering branch.

**Creeping buttercup**, *Ranunculus repens* L., (Figure 55, Plate 18) [renoncule rampante] Perennial, reproducing by seed and by trailing horizontal stems which root at the nodes (a). Stems prostrate and long, or sometimes nearly erect and 20 – 30 cm (8 – 12 in.) high, ranging from smooth to densely hairy; leaves alternate (1 per node), often clustered, mostly with long stalks; the blades 3-parted and the middle segment with a distinct short stalk (b), each segment again lobed and toothed; flowers and seed heads (c) similar to Tall buttercup. Flowers from April to July.

Creeping buttercup occurs in scattered localities throughout Ontario in habitats similar to those of Tall buttercup, but is much less common. It grows particularly well in moist or poorly drained situations and it is often a bad weed in well-watered lawns. It is distinguished from Tall buttercup by its prostrate stems which root at the nodes (a) and by the 3-parted leaf blade in which the central or terminal lobe has a distinct stalk (b). Like Tall buttercup this species also has a bitter, acrid juice and may be poisonous to livestock.

Figure 55. Creeping buttercup



# BARBERRY FAMILY (Berberidaceae)

**Common barberry**, *Berberis vulgaris* L., (Figure 56, Plates 50, 51) [épine-vinette commune] Perennial, reproducing only by seed; bushy shrub 1 – 3 m (3 – 10 ft) high; stems erect; branches gray to yellowish-gray with short, sharp, slender, 3-branched spines (a) (occasionally single or unbranched) at nearly every node; leaves in clusters on short lateral spurs along the main branches, but distinctly alternate (1 per node) on young, rapidly elongating branches; leaf blades broadest above the middle, tapering towards the base, prominently net-veined and grayish-green on the undersurface, with numerous, prominent, sharp or spiny-tipped teeth (b); flowers bright yellow in elongated, drooping racemes from leaf axils near the ends of branches (Plate 50), small, each with 6 yellow sepals, 6 yellow petals, 6 stamens and 1 pistil; berries bright red (Plate 51), elliptical, about 1 cm (⅖ in.) long and containing 1 to 3 or rarely more seeds. Flowers in May and June, the yellow sepals and petals falling very soon afterwards, but the bright red berries often hang on all winter.

Common barberry was introduced as an ornamental shrub, but now occurs wild along fence lines, roadsides, riverbanks, edges of woods and in wasteland throughout southern Ontario. It is distinguished from other shrubs by its clusters of bristly toothed leaves, small yellow flowers in long drooping racemes, usually 3-branched spines and red berries. This plant is a very important pest because its leaves become infested with the fungus which causes stem rust on oats, barley, rye and wheat; the fungus overwinters in these leaves and spreads from them to cause early-season infections of stem rust on nearby grain crops. Eradication of this shrub is essential to help protect grain crops from the stem-rust fungus.

For additional information, see Ontario Ministry of Agriculture and Food Publication 49, *Rid Ontario of Common barberry and European buckthorn.*

**Japanese barberry**, *Berberis thunbergii* DC., (not illustrated) [épine-vinette du Japon], a commonly planted ornamental is normally not subject to the stem-rust fungus. It differs from Common barberry by the absence of bristle-tipped teeth on the leaves, the spines on the stems usually single instead of 3-branched, and the flowers and berries borne singly or in clusters of 2 or 3 from leaf axils. However, hybrids between these two species have occurred and many of these are host to the rust fungus just as is Common barberry.

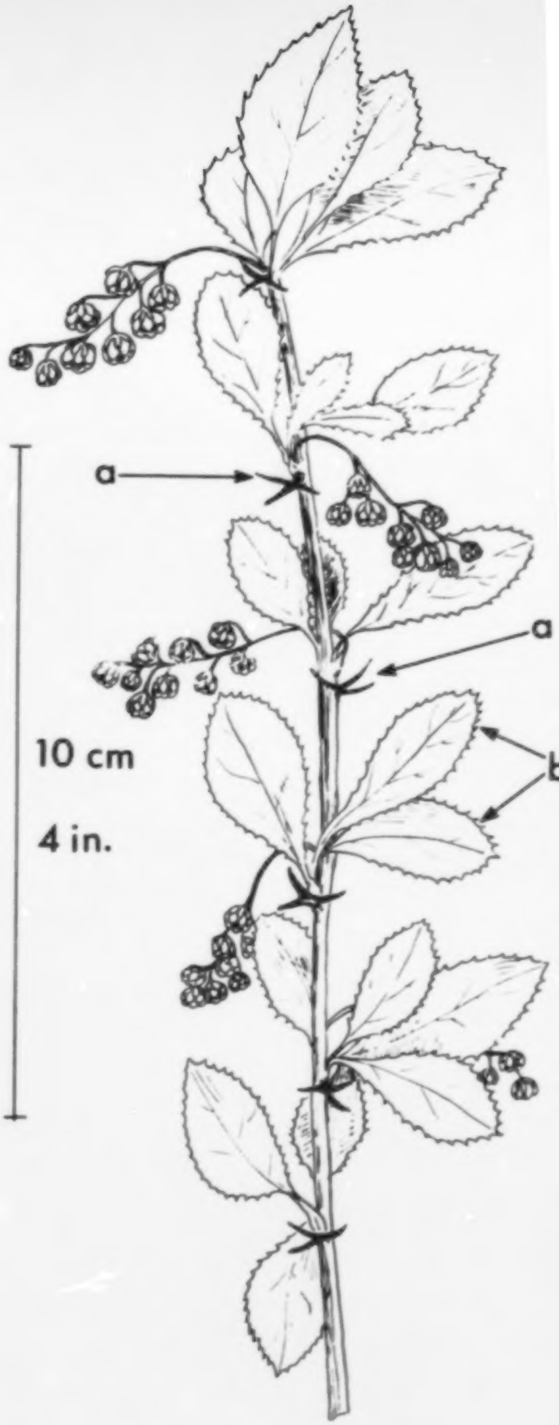


Figure 56. Common barberry

# POPPY FAMILY (Papaveraceae)

**Greater celandine,** *Chelidonium majus* L., (Figure 57) [grande chélidoine, Celandine, Lesser celandine] Biennial or sometimes a short-lived perennial, reproducing only by seed. Stems up to 80 cm (32 in.) high containing an orange-colored juice, hairy in the lower part but smooth towards the top, succulent, rather brittle; leaves of first-year plants basal, green or bluish-green, smooth, divided into usually 5 or 7 segments with rounded teeth or coarse lobes; stem leaves of second-year plants alternate (1 per node), similar but usually smaller; leaves with a thick, sticky orange-yellow juice; flowers bright yellow, usually in umbel-like clusters at the ends of short branches; sepals 2; petals 4, spreading about 2 cm (⅘ in.) across; stamens numerous and 1 slender pistil; seedpods 2.5 – 5 cm (1 – 2 in.) long and opening on 2 sides from the bottom upwards. Flowering may begin in late April and continue throughout the summer and fall.

Greater celandine occurs in scattered localities throughout southern Ontario, occasionally being a common weed in moist soils around farmyards, in waste areas, roadsides and edges of woods. It is easily identified by its characteristic saffron-colored juice, smooth divided leaves with coarsely lobed divisions, and yellow flowers with numerous stamens.

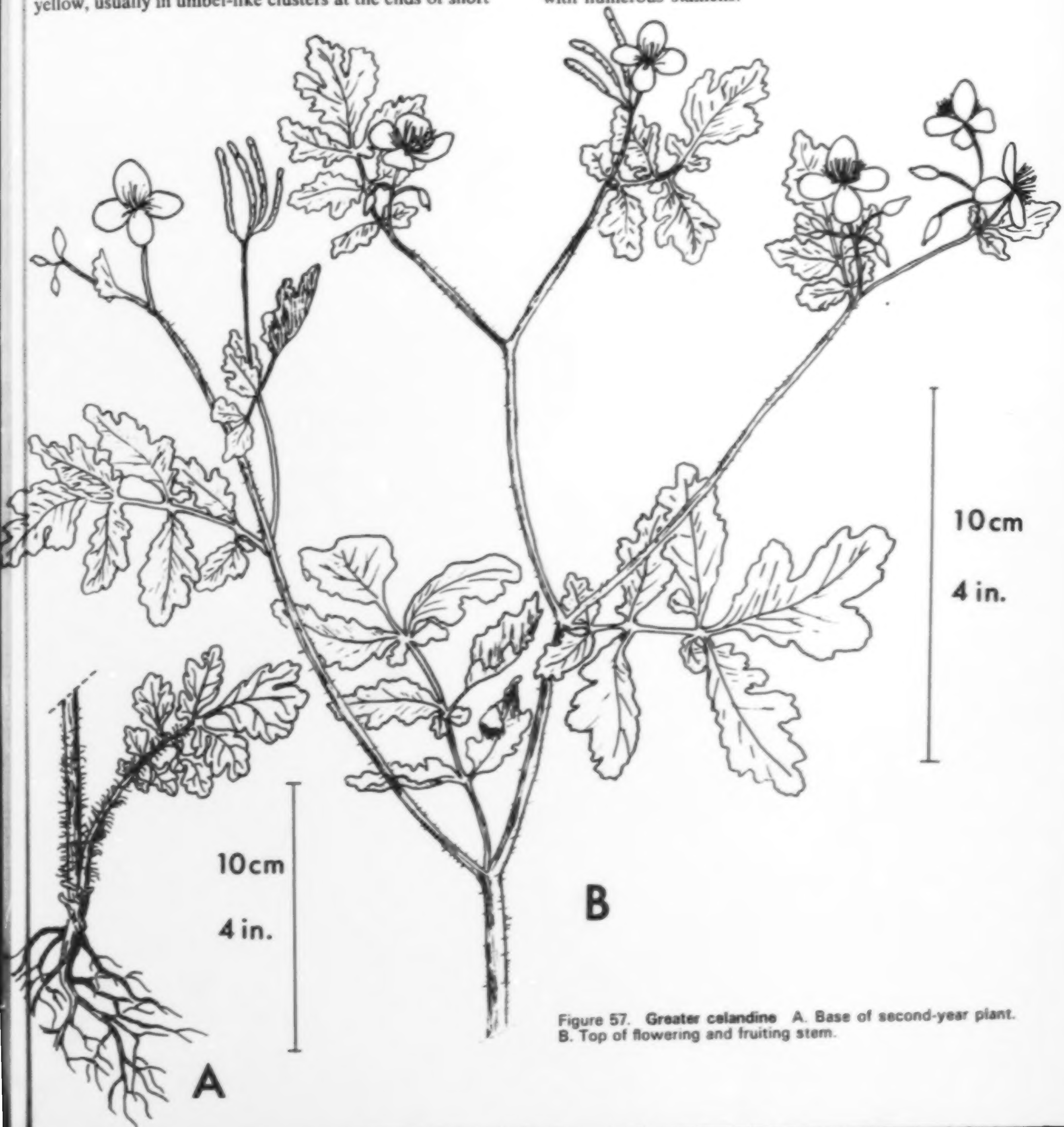
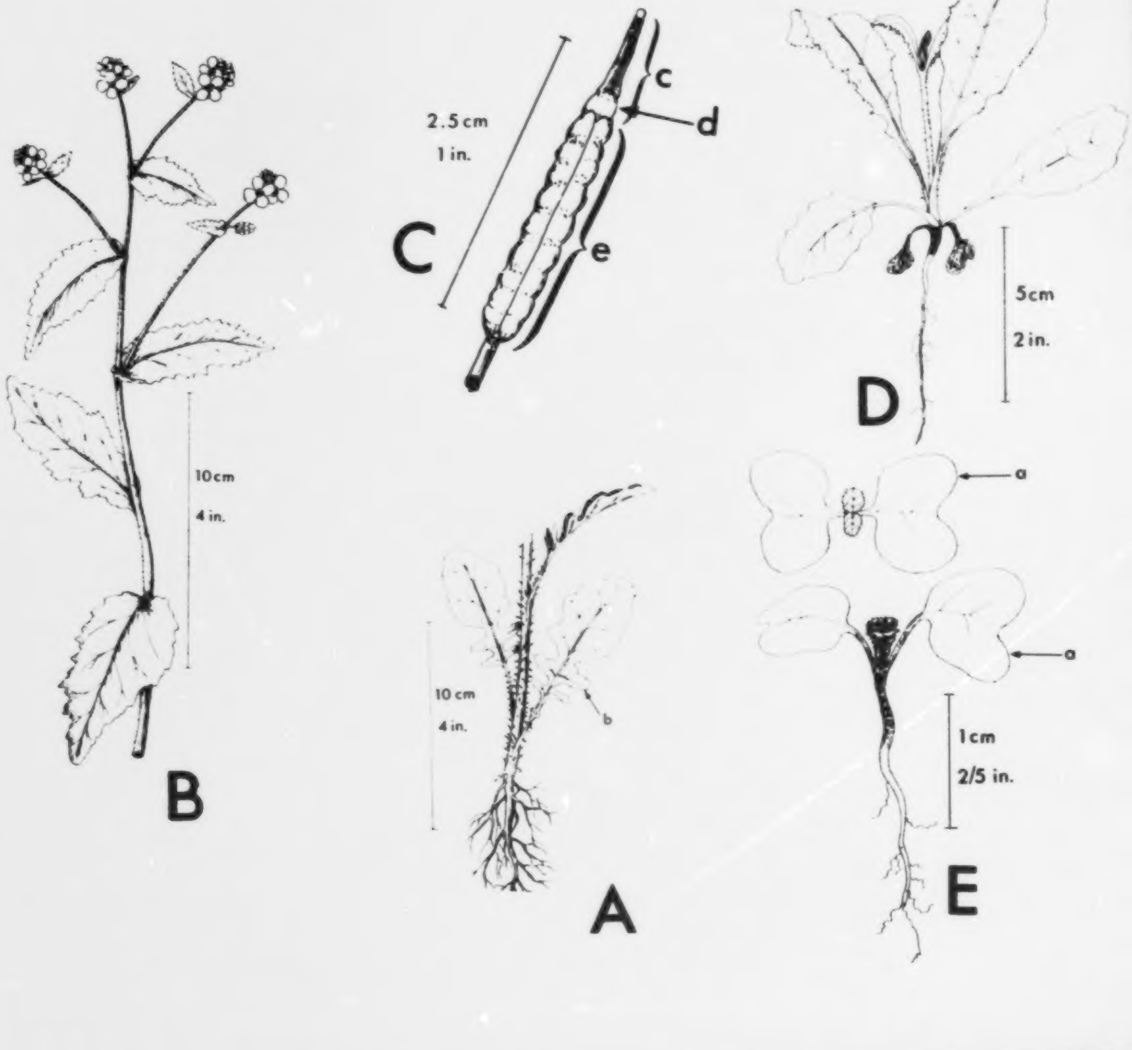


Figure 57. Greater celandine A. Base of second-year plant. B. Top of flowering and fruiting stem.

**Wild mustard**, *Sinapis arvensis* L., (Figure 58, Plate 19) [moutarde des champs, Charlock, Common mustard, Field mustard, Herrick, Kale, Mustard, Yellow mustard, *Brassica kaber* (DC.) L.C. Wheeler var. *pinnatifida* (Stokes) L.C. Wheeler] Annual, reproducing only by seed. Stems erect, 20 – 90 cm (8 – 36 in.) high, branching in the upper part, harshly hairy near the base but weakly hairy or smooth upwards, greenish or sometimes purplish; seedling with broad kidney-shaped cotyledons (a); stem leaves alternate (1 per node), somewhat hairy; lower leaves long-stalked, deeply lobed (b) near the base of the blade; upper leaves stalkless and coarsely toothed but usually not divided; flowers in small clusters which lengthen as the seedpods develop, bright yellow, about 1.5 cm (½ in.) across with 4 small sepals, 4 larger petals arranged in the form of a cross (Family name "Cruciferae" means crucifix or cross), 4 long and 2 short stamens (total 6) and 1 slender pistil; flower stalks thin and short (3 – 5 mm, ⅛ – ⅕ in. long), becoming thicker but not longer as the seedpods develop, sometimes nearly as thick as the pod itself; seedpods (silique) 3 – 5 cm (1⅕ – 2 in.) long, sometimes bristly hairy but usually without hair, often with lengthwise ribs, erect and pressed to the stem or spreading out; each pod has a flattened terminal beak (c) with 1 seed in its base (d) and a main section (e) containing several seeds which are released when the 2 sides or valves split apart from the bottom end and fall away entirely; seeds spherical, 1.5 mm (1/16 in.) diameter, black or purplish. Flowering may begin as early as late May and continue throughout the summer.

Wild mustard occurs throughout Ontario, being most frequent in cultivated fields and gardens, but occasionally appearing in fence lines, along roadsides and in waste areas. It is distinguished from similar mustards by its somewhat kidney-shaped cotyledons (a) being broad with a deep, wide, rounded notch at the end, the hairy stem with lower leaves stalked and lobed but upper ones stalkless and merely toothed (b), its large flowers and its seedpod with a short thick stalk and a flat beak (c) about ⅓ the total length of the pod.

Figure 58. **Wild mustard** A. Base of plant. B. Flowering stem. C. Seedpod D. Young plant. E. Seedling, top and side views.



**Indian mustard,** *Brassica juncea* (L.) Czern., (not illustrated) [moutarde de l'Inde], very similar to Wild mustard but has little or no hair, paler yellow flowers, pods with a slender stalk about 12 mm (½ in.) long and a slender beak which does not have a seed in its base, and brownish-red seeds. Its distribution is much the same as that of Wild mustard although it is generally less common.

**Black mustard,** *Brassica nigra* (L.) Koch, (not illustrated) [moutarde noir, River mustard], resembling Wild mustard when young but grows much taller (up to 2.5 m, 8.5 ft); lower leaves have coarser lobed divisions, upper leaves narrow and nearly without teeth; flowers in very long thin racemes in a widely branched inflorescence as much as 1 m (40 in.) across; seedpods erect and pressed closely to the stem, only 10 – 20 mm (⅖ – ⅘ in.) long with a seedless beak about 3 mm (⅛ in.) long. It occurs in a few localities in southern Ontario, especially in fields and waste areas bordering river valleys, and along railways.

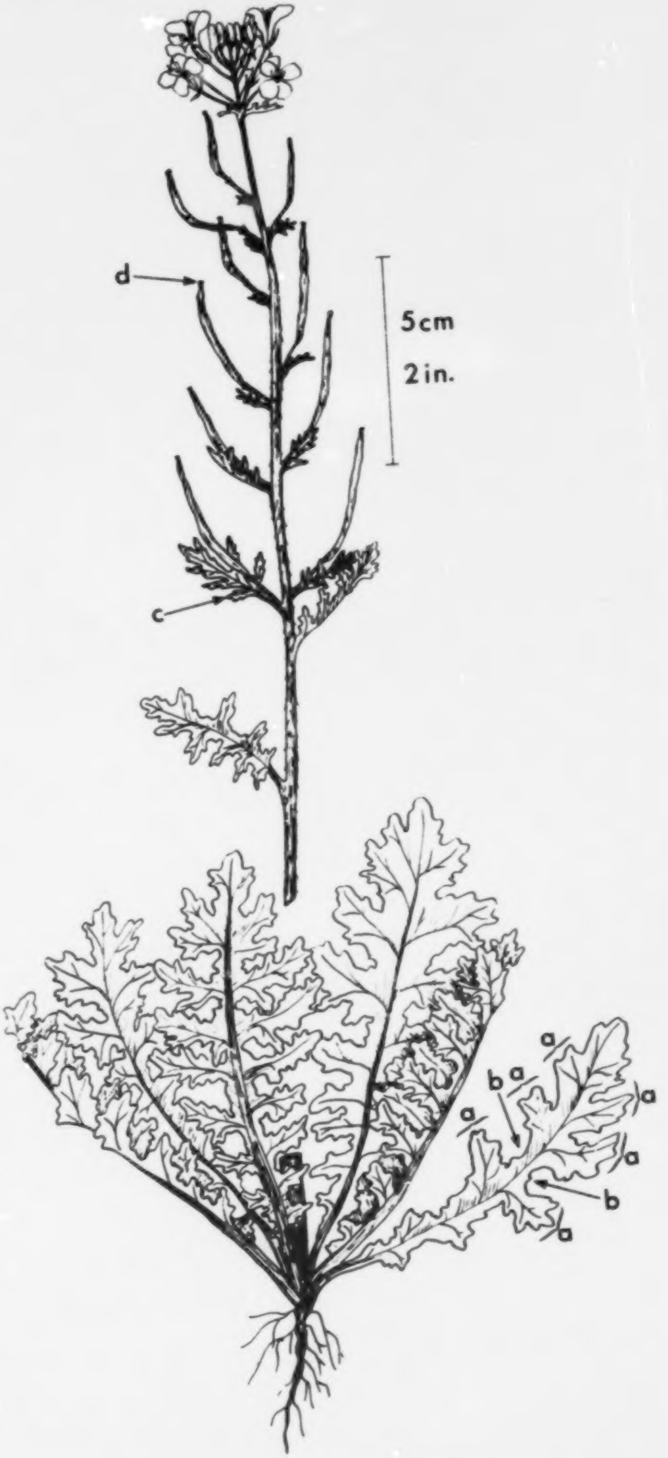
**Bird rape,** *Brassica campestris* L., (not illustrated) [moutarde des oiseaux, Field mustard], resembling small plants of Wild mustard but has a bluish-green color, smooth, stalkless leaves with enlarged bases that clasp the stem; long flower stalks (often 2 cm, ⅘ in., or longer); and smooth plump pods 3 – 5 cm (1⅕ – 2 in.) long with a thin, seedless beak 6 – 12 mm (¼ – ½ in.) long. It occurs in a few grainfields and waste areas in southern Ontario where it is sometimes mistaken for plants of cultivated oil-seed rape with which it is closely allied.

**Wild radish,** *Raphanus raphanistrum* L., (not illustrated) [radis sauvage, Jointed charlock, Jointed radish, Jointed wild radish], also resembling Wild mustard in general habit. It is an annual or winter annual with a slender taproot; lower leaves deeply divided like those of cultivated radish; middle and upper leaves as in Wild mustard; flowers usually yellow but occasionally white or purple with conspicuous veins, and about 12 mm (½ in.) across. Seedpods of Wild radish are very distinctive: although about the same length and thickness as in Wild mustard, they are constricted betwen the seeds, and the pod breaks apart at these constrictions rather than splits lengthwise as in the other mustards. Wild radish is present in only a few scattered localities in Ontario where it infests cultivated fields and waste places.

**Dog mustard,** *Erucastrum gallicum* (Willd.) O.E. Schulz., (Figure 59) [moutarde des chiens] Annual or winter annual, reproducing only by seed. Stems erect, 10 – 60 cm (4 – 24 in.) high, lower part with short, downward-pointing hairs; leaves alternate (1 per node), often in a dense rosette in late autumn and early spring annuals, oblong in general outline, pinnately cut or divided into coarsely lobed segments (a), the bottoms of the spaces (b) between segments more or less rounded, often dark or blackish-green; flowers similar to Wild mustard but pale yellow, the lowermost several flowers and pods of each raceme in axils of small leaves (c); seedpods 2 – 5 cm (⅘ – 2 in.) long, with a narrow beak (d) about 3 mm (⅛ in.) long, on slender stalks, pointing outwards and upwards; seeds oval, reddish-brown, about 1.2 mm (1/20 in.). Flowers from late May to late fall.

Dog mustard occurs throughout Ontario but is more common in the south. It is frequently found around railway yards, waste places, orchards, gardens, roadsides and occasionally in grainfields. It is distinguished from all other plants of the Mustard Family in Ontario by having several lowermost flowers and seedpods in the axils of small leaves (c). No other mustard has this characteristic. Rosettes of young plants resemble Tumble mustard but Dog mustard leaves are usually darker in color, the segments (a) are broader and more coarsely lobed, and the tips of the lobes are usually rounded in Dog mustard but somewhat sharp-pointed in Tumble mustard.

Figure 59. **Dog mustard**



**Stinking wall-rocket**, *Diplotaxis muralis* (L.) DC., (Figure 60A) [diplolaxis des murailles, Sand-rocket] Annual, reproducing only by seed. Stems 20 – 50 cm (8 – 20 in.) long, spreading-erect or nearly horizontal, much-branched, smooth; leaves mostly clustered in a rosette near the base of the stem, alternate (1 per node), elongated, deeply lobed or toothed; flowers like Wild mustard but lemon yellow and on stalks 1 – 1.5 cm (⅖ – ⅗ in.) long; pods 2 – 3.5 cm (⅘ – 1½ in.) long with a very short beak but not developing a short stripe (see Narrow-leaved wall-rocket); flower stalks spreading at an angle from the stem but the seedpods erect or parallel to the stem. The whole plant has a distinctly unpleasant odor, somewhat resembling that of rotting turnips. Flowers from May to September and occurs usually in coarse soils along roads, railways, beaches, around buildings and in waste places in southern Ontario.

**Narrow-leaved wall-rocket**, *Diplotaxis tenuifolia* (L.) DC. (Figure 60B) [diplolaxis a feuille ténues], a perennial, similar to but usually somewhat larger than Stinking wall-rocket. Perennial, reproducing only by seed; plants persisting for several years with a rough, semi-woody, perennial base. It differs from Stinking wall-rocket by having most of its leaves along the stems rather than clustered in a rosette at the ground surface, the stalks of its seeddpods being longer, 2 – 3 cm (⅘ – 1⅕ in.) long, and having a short stipe or secondary stalk (a) about 2 mm (1/12 in.) long between the base of the seedpod and the thickened receptacle where the sepals, petals and stamens have fallen off. It may flower earlier, but its distribution is similar to Stinking wall-rocket.

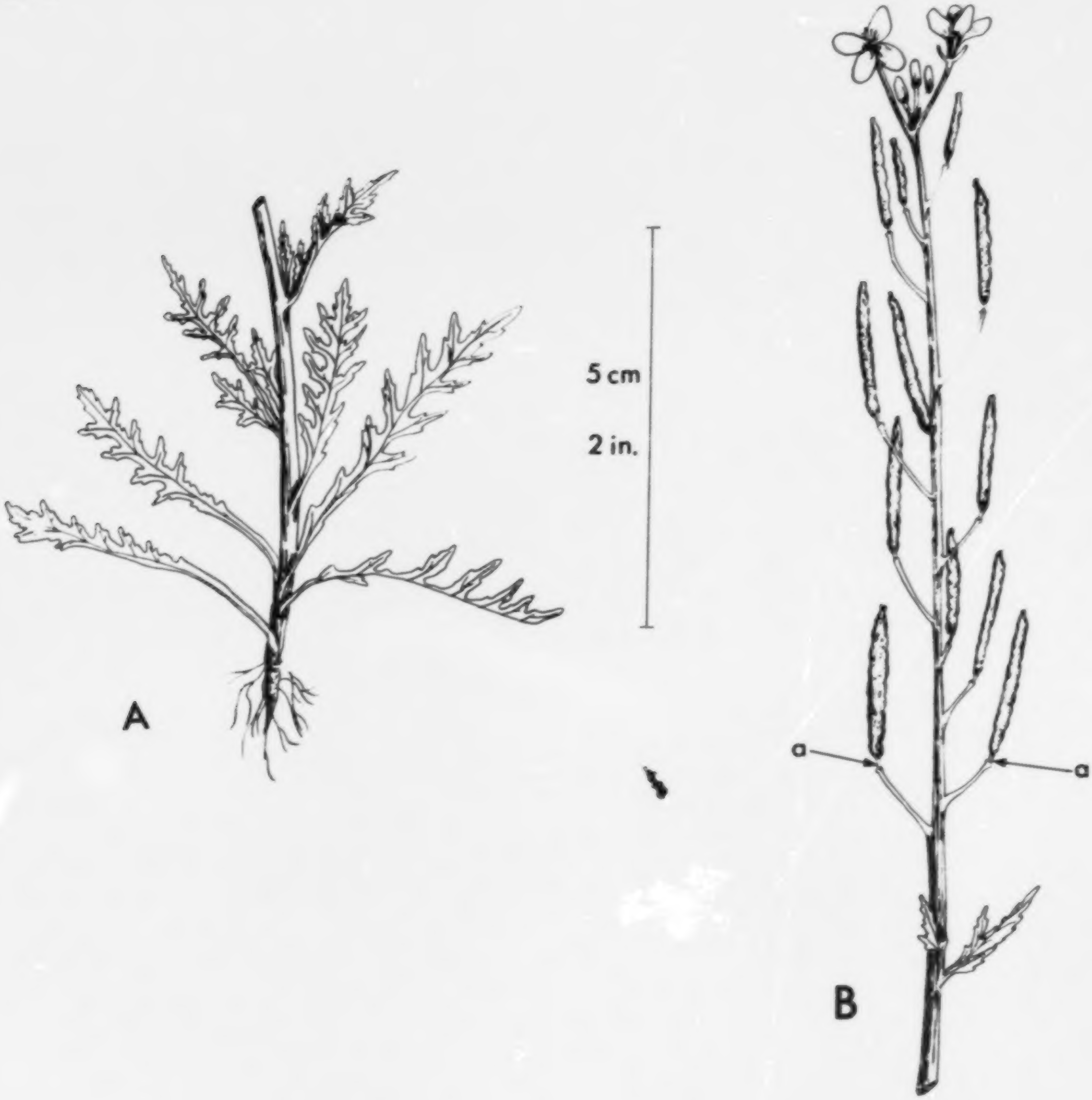


Figure 60. **Stinking wall-rocket** A. Base of annual plant. **Narrow-leaved wall-rocket** B. Upper part of stem with flowers and seedpods.

**Yellow rocket**, *Barbarea vulgaris*, R. Br., (Figure 61, Plate 20) [barbarée vulgaire, Herb barbara, Herb of St. Barbara, Winter cress] Usually biennial or perennial, but some plants flowering, setting seed and dying after their first growing season; reproducing only by seed. Root system on young plants a taproot, becoming much-branched and fibrous with age; young plants producing a rosette of smooth, shiny, dark green leaves during the first year, these staying green throughout the winter or turning slightly purplish by spring; stems forming in the spring, 1 to several stems per plant, erect, 20 – 80 cm (8 – 32 in.) high, branched; rosette and lower stem leaves long-stalked, hairless, divided into 1 large rounded terminal lobe (a) and smaller lobes along each side (b); upper leaves alternate (1 per node), short-stalked or stalkless, coarsely toothed, or without teeth, or sometimes deeply lobed, but always with a pair of basal lobes (c) which clasp the stem; flowers similar to Wild mustard but golden-yellow and somewhat smaller, 10 – 16 mm (⅖ – ⅔ in.) across; the seedpods and their stalks either nearly erect and overlapping one another forming a dense raceme as in the typical botanical variety *(B. vulgaris* var. *vulgaris)* (resembling arrangement of seedpods shown in Figures 63 and 65), or the stalks spreading with the seedpods (d) standing outwards or curving upwards and little or not overlapping one another forming an open raceme as in the second botanical variety *(B. vulgaris* var. *arcuata* (Opiz.) Fries) (as illustrated in Figure 61B); stalks 3 – 6 mm (⅛ – ¼ in.) long; pods 1.5 – 3 cm (⅗ – 1⅕ in.) long with a slender, seedless beak 2 – 3 mm (1/12 – 1/8 in.) long; seeds egg-shaped 1 – 1.5 mm (1/25 – 1/16 in.) long, metallic grayish-brown. Flowers from mid-May to early July and sometimes again briefly in late autumn.

Yellow rocket is common throughout most of Ontario in meadows, pastures, waste areas, roadsides, railways and along watercourses, being especially common in moist rich soil and apparently still spreading rapidly in such areas. Its occurrence in grainfields is increasing. It is similar to Wild mustard and often mistaken for it although the two are easily distinguished. Yellow rocket is a perennial or biennial, so flowers much earlier in the season than Wild mustard and has smaller and deeper golden-yellow flowers. Its leaves are dark glossy green or somewhat purplish, hairless, and distinctly clasp the stem, and the seedpod is tipped by a very slender beak which does not have a seed in its base.

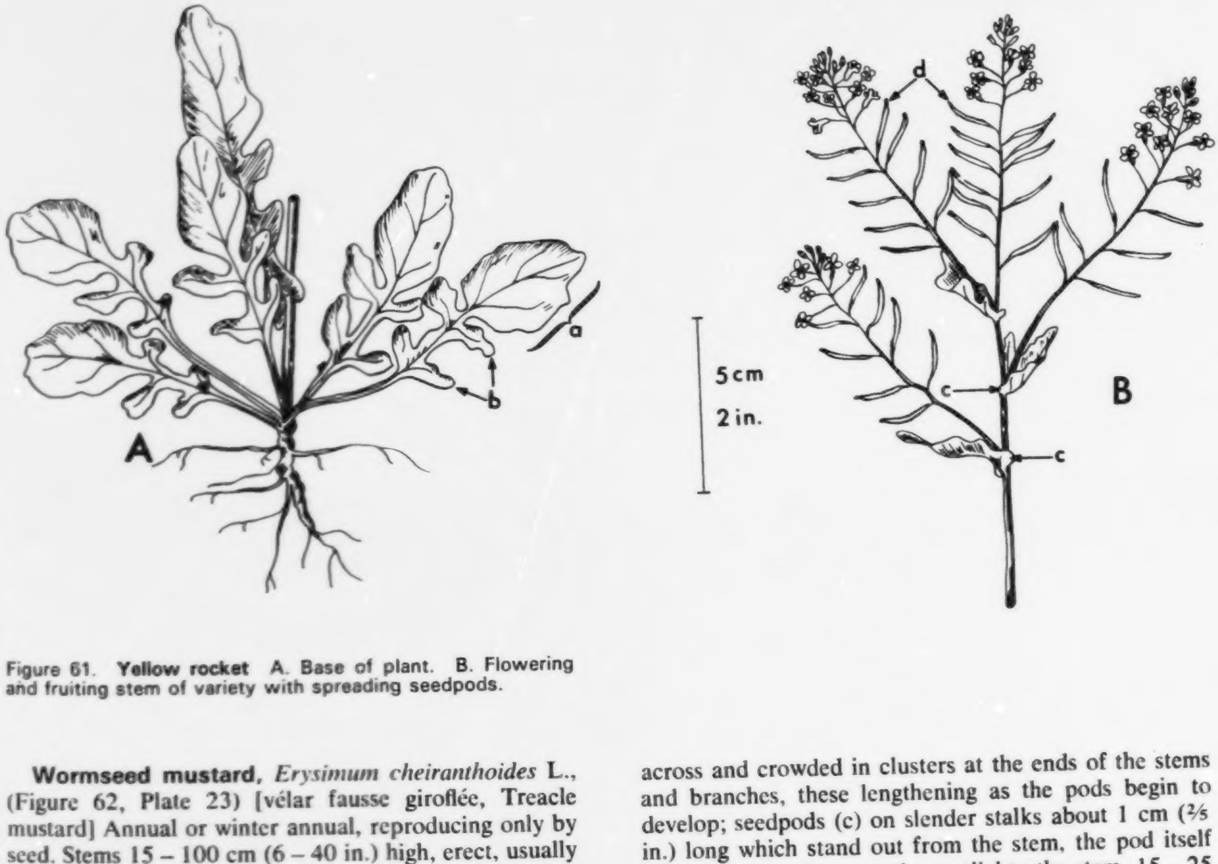
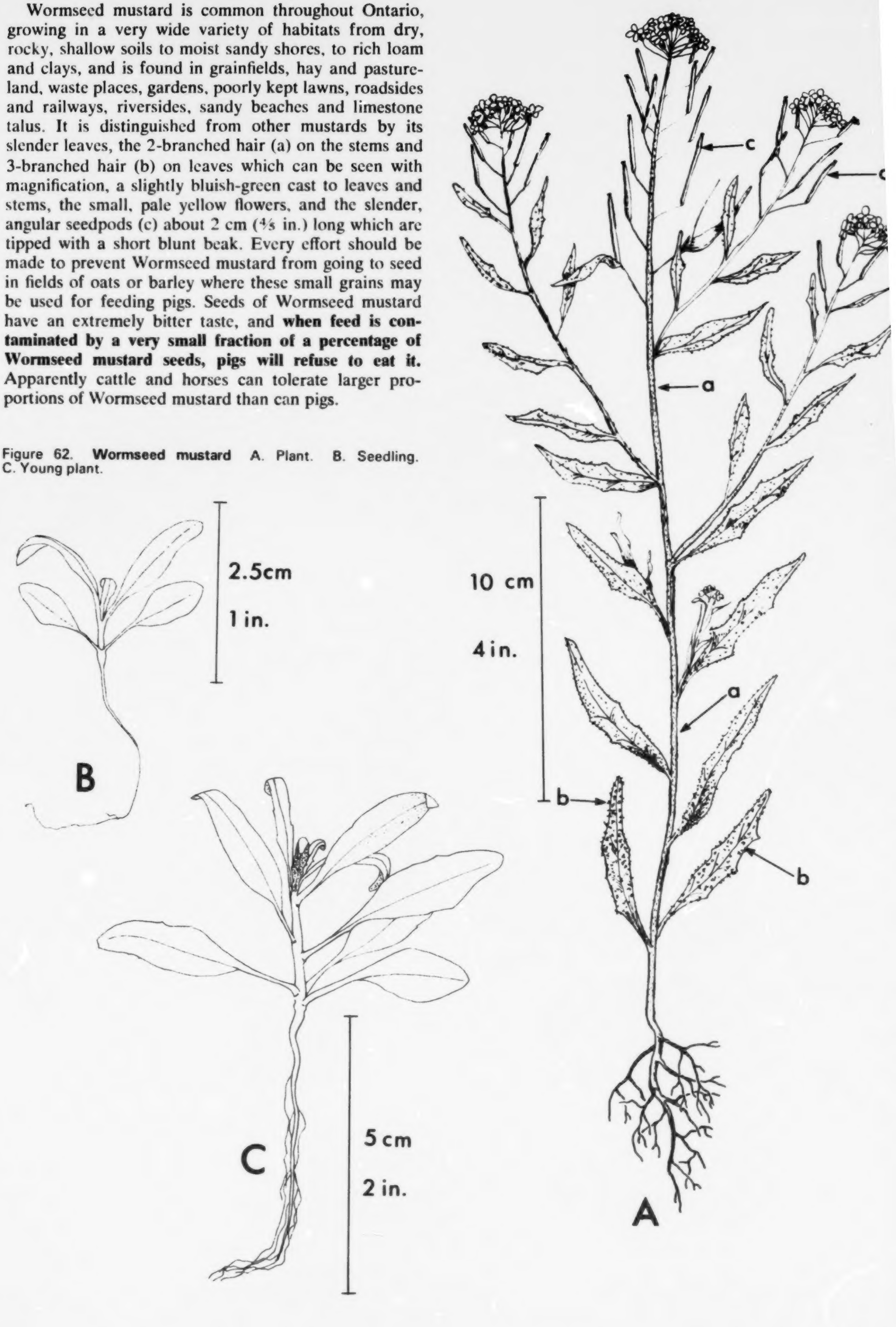


Figure 61. **Yellow rocket** A. Base of plant. B. Flowering and fruiting stem of variety with spreading seedpods.

**Wormseed mustard**, *Erysimum cheiranthoides* L., (Figure 62, Plate 23) [vélar fausse giroflée, Treacle mustard] Annual or winter annual, reproducing only by seed. Stems 15 – 100 cm (6 – 40 in.) high, erect, usually branched, firm, apparently hairless but slightly rough due to tiny, flat-lying, 2-branched hair (a, exaggerated); leaves alternate (1 per node), nearly linear or broader near the middle and tapering to both ends, without teeth or with a few wavy or slightly pointed teeth, slightly rough on both surfaces with tiny 3-branched hair (b, exaggerated); flowers similar to those of Wild mustard but paler yellow and much smaller, about 6 mm (¼ in.) across and crowded in clusters at the ends of the stems and branches, these lengthening as the pods begin to develop; seedpods (c) on slender stalks about 1 cm (⅖ in.) long which stand out from the stem, the pod itself standing upwards or nearly parallel to the stem, 15 – 25 mm (⅗ – 1 in.) long, usually somewhat 4-angled in cross-section and tipped by a short blunt beak; seeds dull reddish-yellow, very small, about 1 mm (1/25 in.) long and usually less than half as wide. Flowers from mid-June to late autumn and sheds mature seeds soon after flowering begins; plants often turning purplish at maturity.

Wormseed mustard is common throughout Ontario, growing in a very wide variety of habitats from dry, rocky, shallow soils to moist sandy shores, to rich loam and clays, and is found in grainfields, hay and pastureland, waste places, gardens, poorly kept lawns, roadsides and railways, riversides, sandy beaches and limestone talus. It is distinguished from other mustards by its slender leaves, the 2-branched hair (a) on the stems and 3-branched hair (b) on leaves which can be seen with magnification, a slightly bluish-green cast to leaves and stems, the small, pale yellow flowers, and the slender, angular seedpods (c) about 2 cm (⅘ in.) long which are tipped with a short blunt beak. Every effort should be made to prevent Wormseed mustard from going to seed in fields of oats or barley where these small grains may be used for feeding pigs. Seeds of Wormseed mustard have an extremely bitter taste, and **when feed is contaminated by a very small fraction of a percentage of Wormseed mustard seeds, pigs will refuse to eat it.** Apparently cattle and horses can tolerate larger proportions of Wormseed mustard than can pigs.

Figure 62. **Wormseed mustard** A. Plant. B. Seedling. C. Young plant.



**Tall wormseed mustard**, *Erysimum hieraciifolium* L., (Figure 63) [vélar à feuille d'épervière] Biennial or possibly short-lived perennial, reproducing only by seed. This is a taller, coarser plant than Wormseed mustard; stems stiffly erect, 90 – 180 cm (3 – 6 ft) high, branched but with the branches also erect, similarly harsh with tiny 2-branched hair; leaves of first-year plants in a dense rosette on the ground surface, long and narrow with the widest part usually nearer the tip end, green or sometimes purplish, their dead bases (a) obvious at ground level in the second year; stem leaves (B) alternate (1 per node) on the stem and of similar size and shape but smaller upwards, with tiny 3-branched to 4-branched hair on both surfaces; flowers somewhat larger than Wormseed mustard and on shorter stalks (b), seedpods (c) erect and closely parallel to the stem. Flowers from mid-July to the end of the growing season.

Tall wormseed mustard occurs in several localities, mostly in southeastern Ontario where it grows in pastureland, waste areas, railroad embankments and river flats.

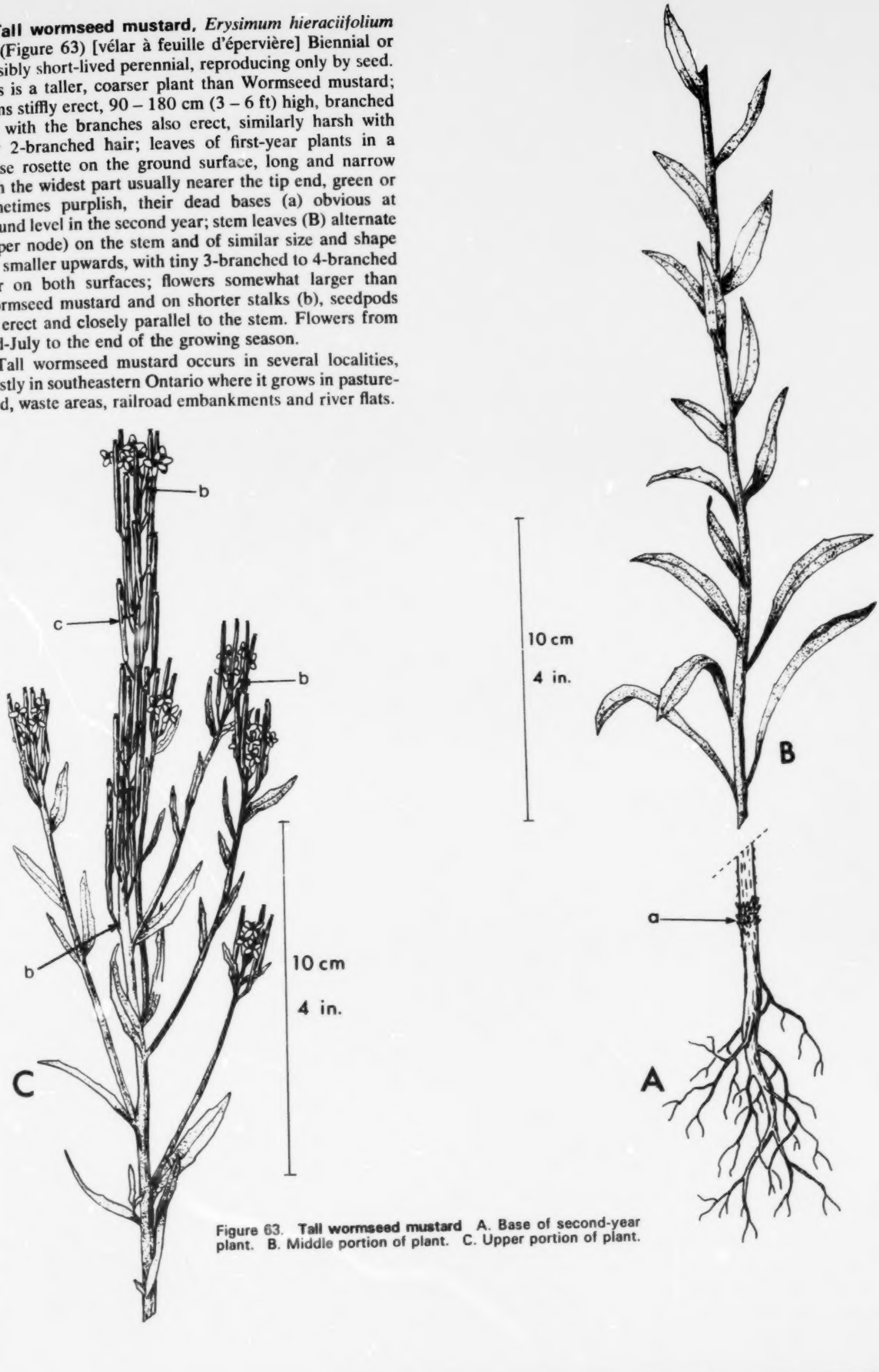
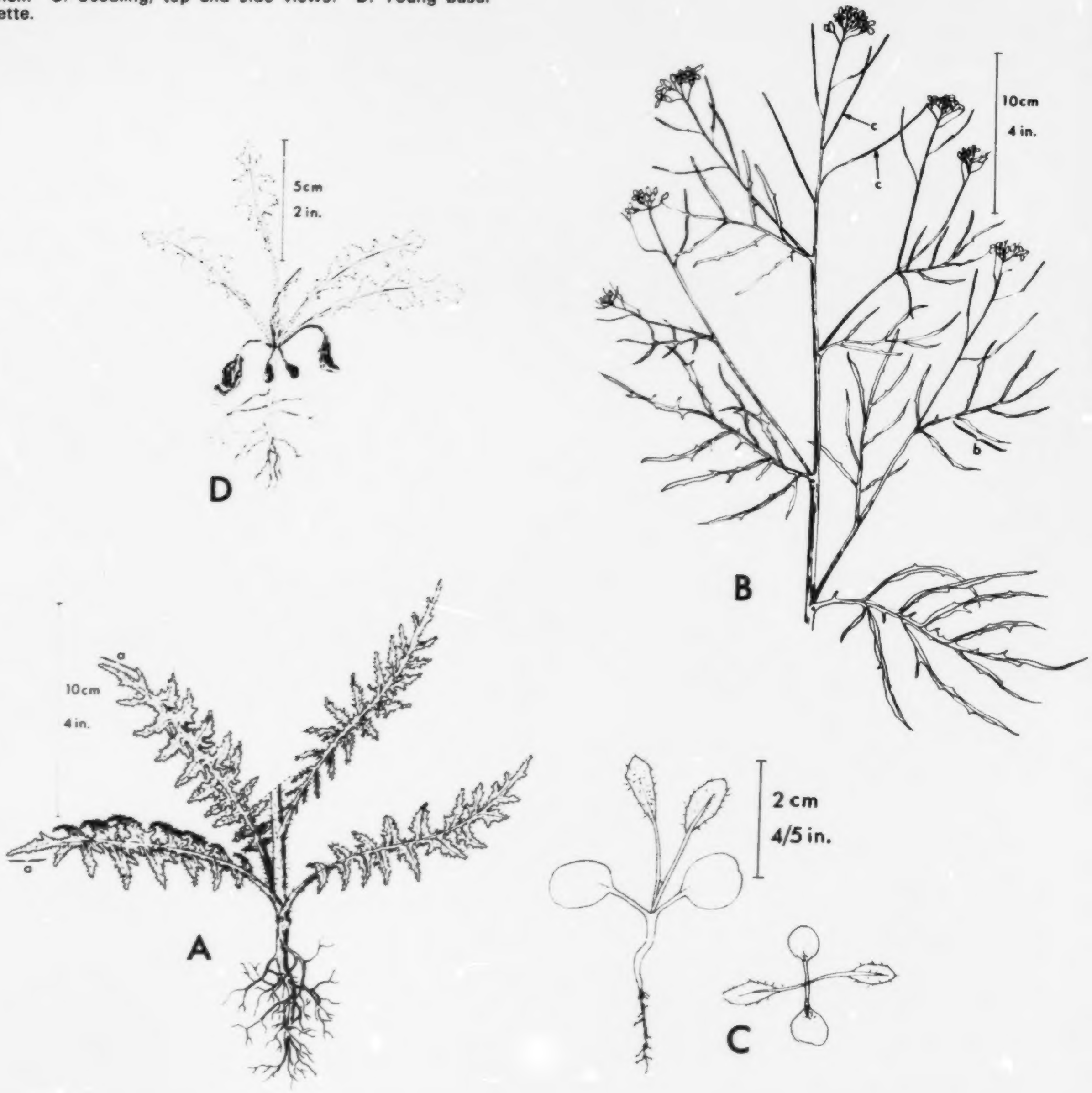


Figure 63. **Tall wormseed mustard** A. Base of second-year plant. B. Middle portion of plant. C. Upper portion of plant.

**Tumble mustard,** *Sisymbrium altissimum* L., (Figure 64, Plate 22) [sisymbre élevé, Tumbling mustard, Tumbleweed] Annual or winter annual, reproducing only by seed. Stems 30 – 120 cm (1 – 4 ft) high, much-branched in the upper part, becoming rather woody and brittle as the plant matures; lower stem and leaves hairy with spreading white hair (A), but upper parts smooth (B); first leaves in a basal rosette (D), becoming large, hairy, shallowly toothed or deeply lobed or usually completely divided (A) into 6 or more pairs of broad, jagged-toothed segments plus a terminal lobe (a) which is never much larger than the side segments; upper leaves narrow and either shallowly toothed or pinnately divided into many very slender segments (b) which are sometimes nearly threadlike; rosette and lower leaves usually dried and gone by flowering time; flowers pale yellow, resembling Wild mustard but smaller, 6 mm (1/4 in.) across, in loose clusters at tips of branches; seedpods (c) very slender and very long, 5 – 10 cm (2 – 4 in.) long, stiff, wide-spreading and almost branch-like, about the same thickness as their stalks, splitting in 3 lengthwise; seeds about 1 mm (1/25 in.) long, oblong, yellow to reddish-yellow, olive-green, or light brown. Flowering from June to early autumn.

Tumble mustard is found throughout Ontario, usually along railway tracks, roadsides and in waste areas but it is appearing with greater frequency in grainfields, especially on sandy soils in the southern portion of the province. When the seedpods are nearly mature, Tumble mustard is easily distinguished from all other mustards in Ontario because it is the only one with such long thin pods (c). Rosettes can be distinguished by the terminal lobe (a) of the hairy, divided leaf not being larger than the jagged-toothed lobes along the sides. Young plants up to early flowering can be distinguished by having coarsely lobed basal and lower stem leaves but finely divided upper leaves.

Figure 64. **Tumble mustard** A. Base of plant. B. Flowering branch. C. Seedling, top and side views. D. Young basal rosette.



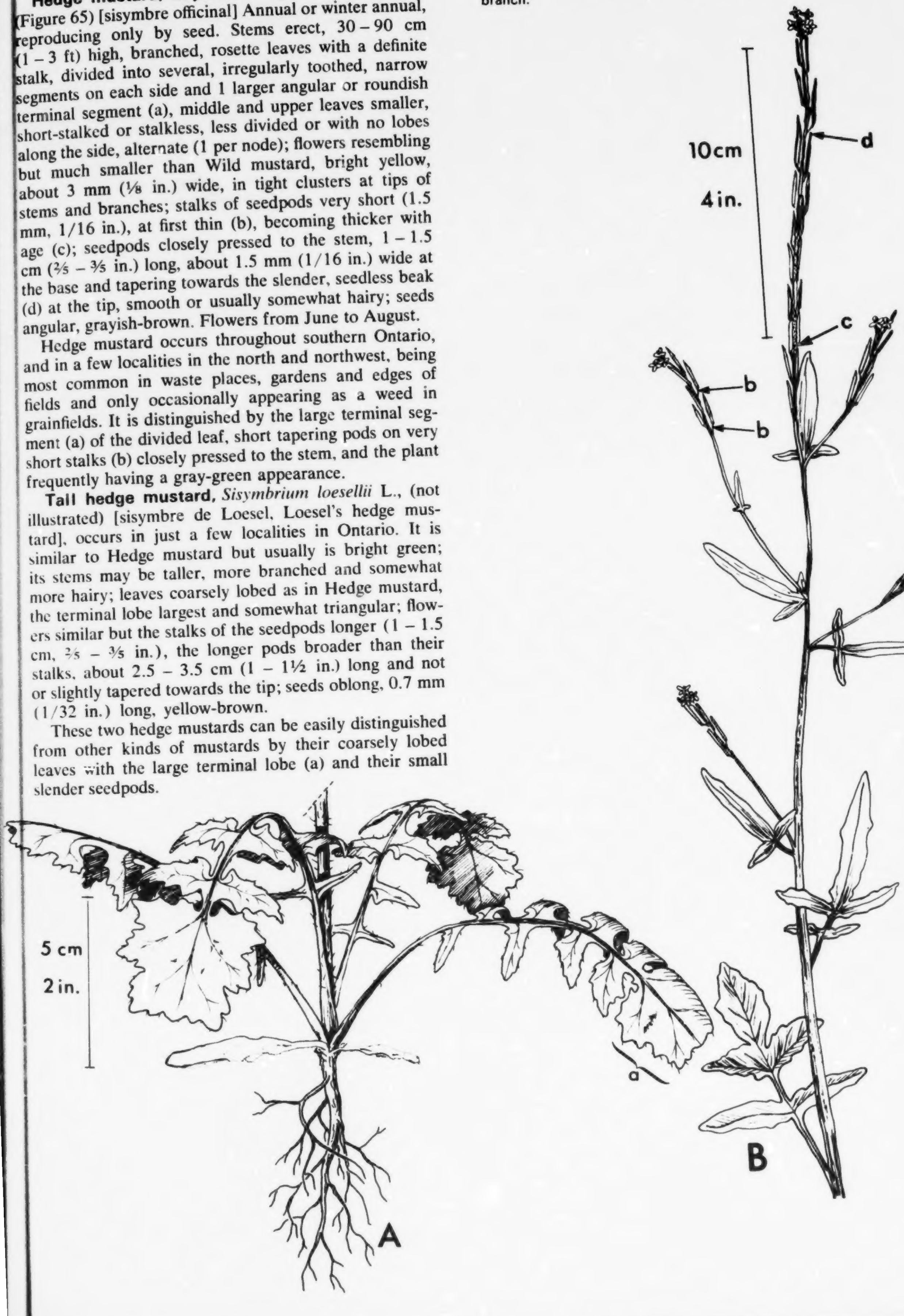
**Hedge mustard,** *Sisymbrium officinale* (L.) Scop., (Figure 65) [sisymbre officinal] Annual or winter annual, reproducing only by seed. Stems erect, 30 – 90 cm (1 – 3 ft) high, branched, rosette leaves with a definite stalk, divided into several, irregularly toothed, narrow segments on each side and 1 larger angular or roundish terminal segment (a), middle and upper leaves smaller, short-stalked or stalkless, less divided or with no lobes along the side, alternate (1 per node); flowers resembling but much smaller than Wild mustard, bright yellow, about 3 mm (⅛ in.) wide, in tight clusters at tips of stems and branches; stalks of seedpods very short (1.5 mm, 1/16 in.), at first thin (b), becoming thicker with age (c); seedpods closely pressed to the stem, 1 – 1.5 cm (⅖ – ⅗ in.) long, about 1.5 mm (1/16 in.) wide at the base and tapering towards the slender, seedless beak (d) at the tip, smooth or usually somewhat hairy; seeds angular, grayish-brown. Flowers from June to August.

Hedge mustard occurs throughout southern Ontario, and in a few localities in the north and northwest, being most common in waste places, gardens and edges of fields and only occasionally appearing as a weed in grainfields. It is distinguished by the large terminal segment (a) of the divided leaf, short tapering pods on very short stalks (b) closely pressed to the stem, and the plant frequently having a gray-green appearance.

**Tall hedge mustard,** *Sisymbrium loesellii* L., (not illustrated) [sisymbre de Loesel, Loesel's hedge mustard], occurs in just a few localities in Ontario. It is similar to Hedge mustard but usually is bright green; its stems may be taller, more branched and somewhat more hairy; leaves coarsely lobed as in Hedge mustard, the terminal lobe largest and somewhat triangular; flowers similar but the stalks of the seedpods longer (1 – 1.5 cm, ⅖ – ⅗ in.), the longer pods broader than their stalks, about 2.5 – 3.5 cm (1 – 1½ in.) long and not or slightly tapered towards the tip; seeds oblong, 0.7 mm (1/32 in.) long, yellow-brown.

These two hedge mustards can be easily distinguished from other kinds of mustards by their coarsely lobed leaves with the large terminal lobe (a) and their small slender seedpods.

Figure 65. **Hedge mustard** A. Base of plant. B. Flowering branch.



**Flixweed**, *Descurainia sophia* (L.) Webb, (Figure 66, Plate 21) [sagesse-des-chirurgiens, Tansy mustard] Annual, winter annual or biennial, reproducing only by seed. Stems erect, 30 – 90 cm (1 – 3 ft) high, branched above; stems and leaves grayish-green from a dense covering of fine-branched hair, leaves alternate (1 per node), very finely dissected, almost feather-like; flowers individually very small and crowded at the ends of stems and branches, pale yellow; seedpods (a) spreading from the stem on very slender stalks, curved upwards and nearly parallel to the stem; seeds bright orange, oblong, about 1 mm (1/25 in.) long. Flowering from late May until the end of the summer. The whole plant has a distinctive musty odor, especially strong when cut or bruised.

Flixweed occurs in scattered localities throughout Ontario, usually in gardens, fence lines, waste places, and along roadsides, but only occasionally in grainfields.

Flixweed is sometimes mistakenly called Tansy mustard because it resembles and is closely related to the true tansy mustards. They are **Gray tansy mustard**, *Descurainia richardsonii* (Sweet) O. E. Schultz, (not illustrated) [moutarde tanaisie grise] and **Green tansy mustard**, *Descurainia pinnata* (Walt.) Britt. var. *brachycarpa* (Richards.) Fern., (not illustrated) [moutarde tanaisie verte] Both are native plants in North America but are probably less common as weeds in Ontario than is Flixweed which was introduced from Europe. Gray tansy mustard is grayish like Flixweed but its leaves are less finely divided, seedpods shorter (about 10 mm, ⅖ in. long) on shorter stalks (5 mm, ⅕ in. long) and are usually held erect and very close to the stem like those of Hedge mustard (Figure 65). Green tansy mustard has leaves nearly as finely divided as those of Flixweed but the stem and leaves are green rather than grayish-green. Green tansy mustard has unbranched hair with a slightly enlarged head or gland at the tip, just barely visible to the naked eye, and these glandular hairs give the plant a slightly sticky texture. Seedpods of Gray tansy mustard are broader than those of Flixweed, somewhat cigar-shaped, about 10 mm (⅖ in.) long and nearly 2 mm (1/12 in.) wide. Green and Gray tansy mustard are more likely to be found in native situations such as open, gravelly or rocky soil, and sandy woodlands but they also occur in similar situations to those of Flixweed.

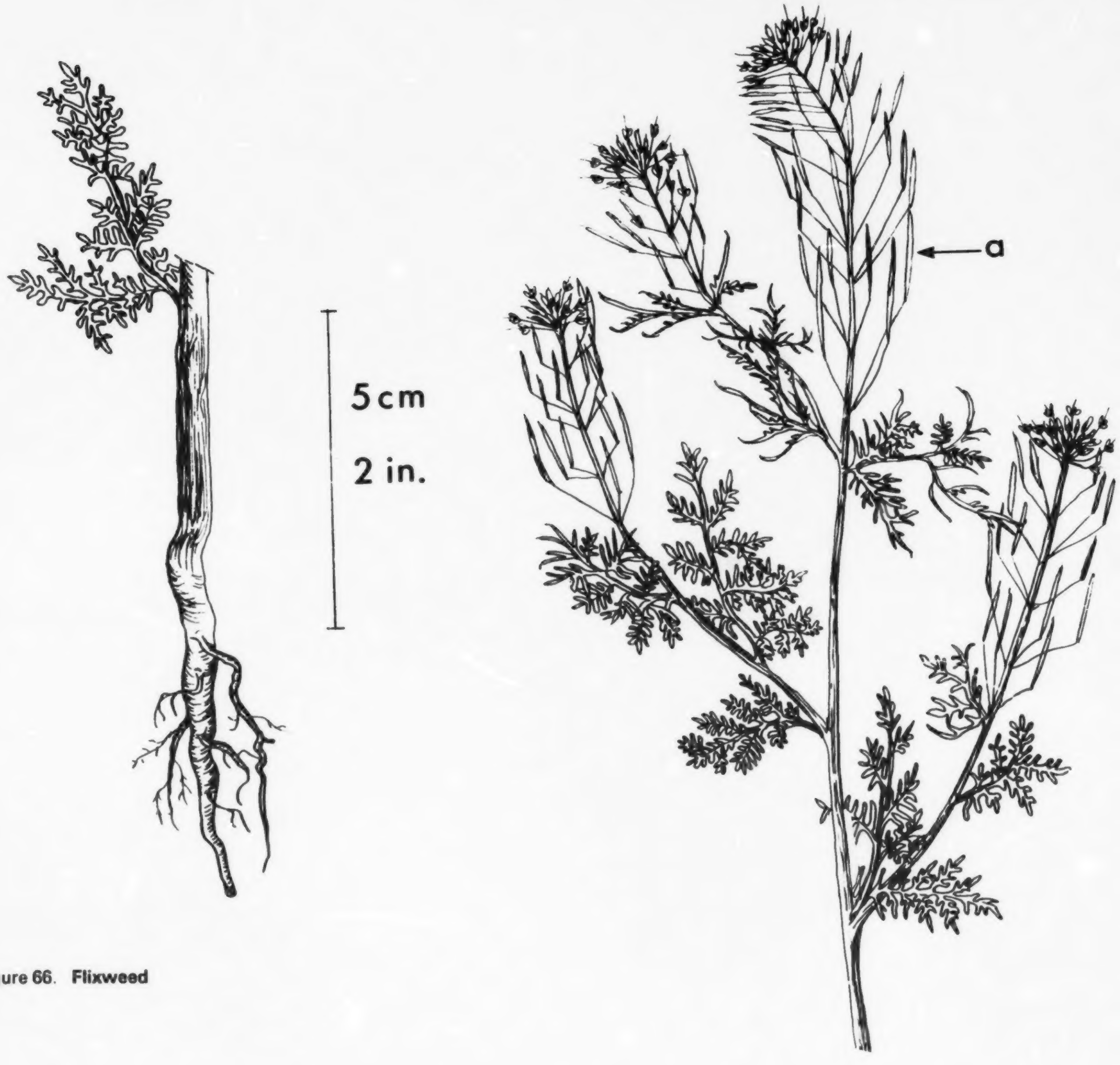


Figure 66. **Flixweed**

**Field pepper-grass,** *Lepidium campestre* (L.) R.Br., (Figure 67) [lepidie des champs, pepperweed] Annual or biennial, reproducing only by seed. Stems 10 – 50 cm (4 – 20 in.) high, branched near the top, short hairy; leaves of basal rosette long-stalked, and varying from without teeth or lobes (A) to deeply lobed along each side (B); stem leaves alternate (1 per node), stalkless, short, wavy-margined, with arrowhead-shaped bases (a) that clasp the stem; stems and leaves somewhat rough in texture due to a covering of very short hair; flowers individually very small but forming dense, whitish, small clusters at the tips of the stems and branches; seedpods numerous and closely spaced along each branch, standing straight out from the stem on short stalks about 4 – 8 mm (1/6 – 1/3 in.) long; the pods flattened, oblong, 5 – 6 mm (1/5 – 1/4 in.) long, mostly held horizontally and with the tip slightly upturned (b), winged towards the outer end (c) and with a small terminal notch in which the tiny style persists as a wee spine; seeds 2 per pod, 1 on each side of the septum (membranous partition); septum only as wide as the fruit is thick.

Field pepper-grass is common in pastures, roadsides, edges of woods and waste areas throughout southern Ontario; only rarely found in cultivated fields. It is distinguished from Common pepper-grass by the clasping bases (a) of the stem leaves, and the seedpods being larger with distinct wings (c) and an up-curved tip (b).

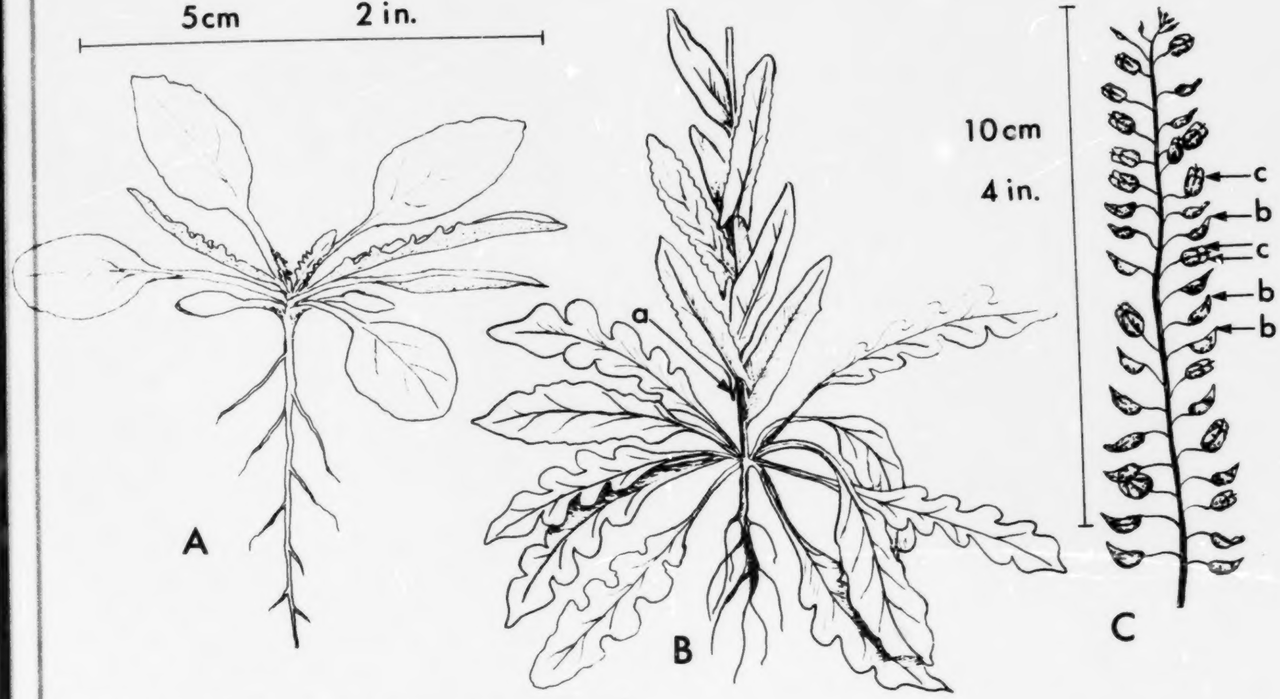


Figure 67. **Field pepper-grass** A. Young plant. B. Base of flowering plant. C. Raceme of seedpods.

**Common pepper-grass,** *Lepidium densiflorum* Schrad., (Figure 68) [lepidie densiflore, Green-flowered pepper-grass, Pepperweed] Annual or winter annual, reproducing only by seed. Stems 10 – 60 cm (4 – 24 in.) high, usually very much-branched in the upper part and sometimes towards the base as well, densely covered with very short hair; rosette leaves with a definite stalk, deeply lobed or divided into separate segments or merely sharply toothed; lower stem leaves alternate (1 per node), smaller and less lobed than the basal ones; upper stem leaves very narrow and either shallowly toothed or without teeth; flowers individually very small with the petals extremely short or absent altogether, densely clustered at the tips of the branches; seedpods very dense (9 to 15 pods per 1 cm, 2/5 in., of stem), flattened, nearly round, 2 – 3 mm (1/12 – 1/8 in.) across with very narrow short wings (a) towards the tip, a notch between them and a tiny stigma in that notch; seeds 2 per pod, 1 on each side of the septum (membranous partition); septum very narrow, only as wide as the fruit is thick; seeds bright reddish-yellow. Flowers from June to August. When mature the plant becomes brittle and easily breaks off, rolling and scattering its seed.

Common pepper-grass occurs through Ontario, being a very common weed in cultivated fields, farmyards, gardens, roadsides and waste areas. It is distinguished from similar plants by its very numerous, small, rounded but flat, 2-seeded pods with almost no wings (a) around the margins, and the flowers with tiny white petals shorter than the sepals or missing altogether.

**Poor-man's pepper-grass,** *Lepidium virginicum* L., (not illustrated) [lépidie de Virginie], nearly identical in appearance to Common pepper-grass, the most important distinguishing feature being that its small flowers have petals about twice as long as the sepals. It is a native plant that occurs in scattered localities throughout Ontario in meadows, waste areas, roadsides and occasionally in cultivated land.

**Clasping-leaved pepper-grass,** *Lepidium perfoliatum* L., (not illustrated) [lépidie perfoliée], similar to Common pepper-grass in general habit of growth but easily distinguished because its flowers are pale yellow, the basal leaves are finely divided, and the stem leaves have rounded or oval blades which appear to completely encircle the stem. It occurs in only a few localities in the central part of southern Ontario.

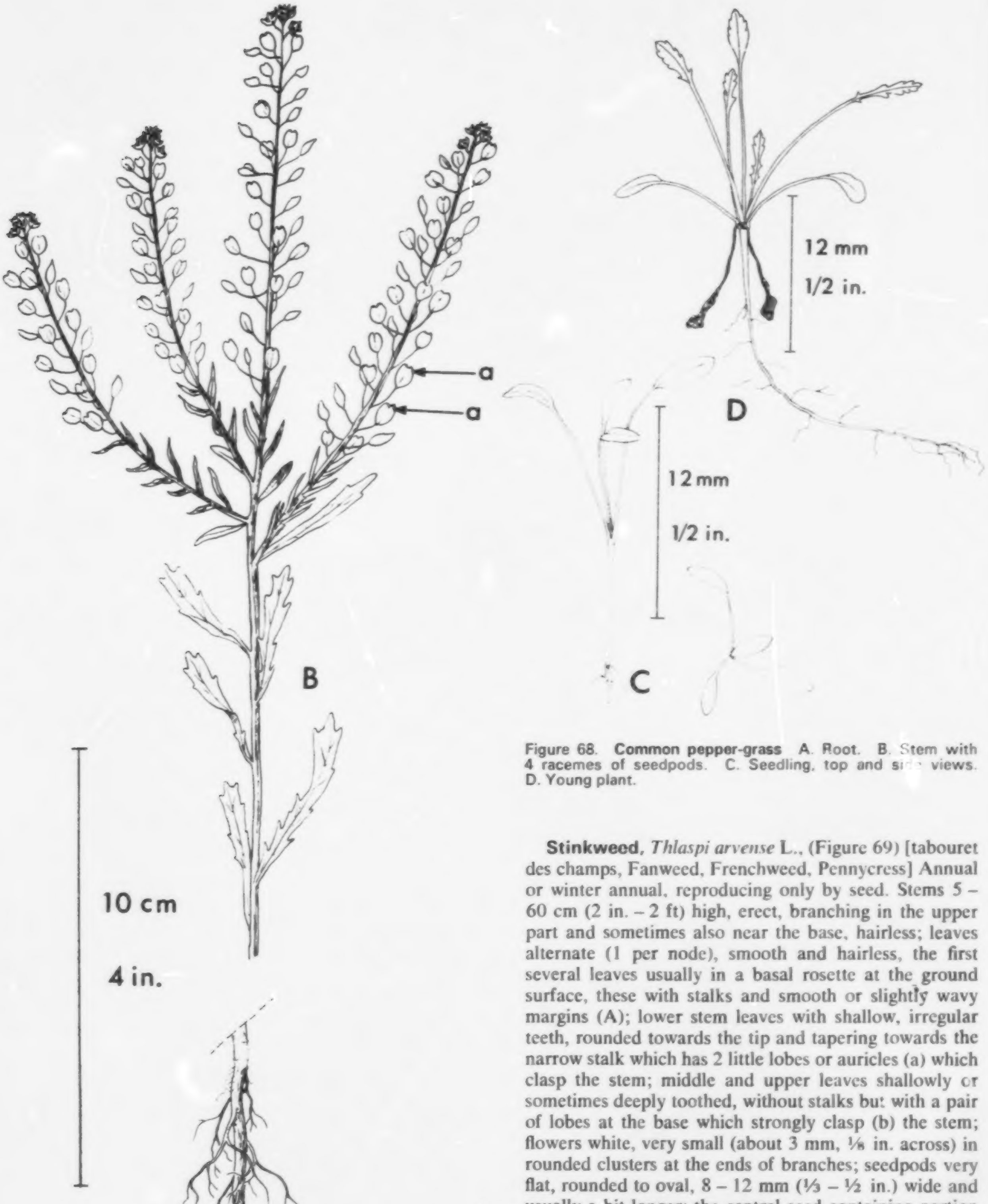


Figure 68. **Common pepper-grass** A. Root. B. Stem with 4 racemes of seedpods. C. Seedling, top and side views. D. Young plant.

**Stinkweed,** *Thlaspi arvense* L., (Figure 69) [tabouret des champs, Fanweed, Frenchweed, Pennycress] Annual or winter annual, reproducing only by seed. Stems 5 – 60 cm (2 in. – 2 ft) high, erect, branching in the upper part and sometimes also near the base, hairless; leaves alternate (1 per node), smooth and hairless, the first several leaves usually in a basal rosette at the ground surface, these with stalks and smooth or slightly wavy margins (A); lower stem leaves with shallow, irregular teeth, rounded towards the tip and tapering towards the narrow stalk which has 2 little lobes or auricles (a) which clasp the stem; middle and upper leaves shallowly or sometimes deeply toothed, without stalks but with a pair of lobes at the base which strongly clasp (b) the stem; flowers white, very small (about 3 mm, ⅛ in. across) in rounded clusters at the ends of branches; seedpods very flat, rounded to oval, 8 – 12 mm (⅓ – ½ in.) wide and usually a bit longer; the central seed-containing portion slightly thickened but surrounded by a broad flat wing with a narrow deep notch (c) at the tip, in the center of which are the remains of the tiny style; seed-containing section divided into 2 compartments by a very narrow septum (membranous partition), each side containing 3 to 8 seeds; this white septum often remaining on the plant after the pod breaks apart to release the seeds reddish-brown to purplish or blackish, ovoid but somewhat flattened, 1.5 – 2 mm (1/16 – 1/12 in.) long with several rows of concentric ridges on each side; flowers from early spring to late fall. The whole plant has a sour turnip-garlic odor which is distasteful to most people, and causes tainted milk when dairy cattle feed on it.

Stinkweed occurs throughout Ontario in cultivated fields, waste places, roadsides and gardens. It is distinguished from the pepper-grasses, which it closely resembles, by the complete absence of hair from stems and leaves, its unpleasant odor and its larger flat seedpods with a broad flat wing.

The hoary cresses, *Cardaria* spp., (not illustrated) [cranson, Perennial pepper-grass, White-top, White-weed] of which there are three species in scattered localities in Ontario, resemble Stinkeed in general appearance of stems, leaves and flowers. Their most important features are their deeply penetrating and widely spreading roots and underground stems which make them extremely difficult to eradicate. In addition to their perennial habit, they are readily distinguished from Stinkweed by being slightly hairy and having wingless seedpods containing only 2 seeds. The mature seedpods are spherical and slightly hairy in **Globe-podded hoary cress**, *Cardaria pubescens* (Meyer) Jarmolenko, [cranson velu]; they are lens-shaped and hairless in **Lens-podded hoary cress**, *Cardaria chalepensis* (Meyer) Handel-Mazzetti, [cranson rampant]; and they are somewhat flat with a heart-shaped base in **Heart-podded hoary cress**, *Cardaria draba* (L.) Desv., [cranson dravier]. All three flower from May to July, and occur in cultivated land, pastures, roadsides and waste areas.

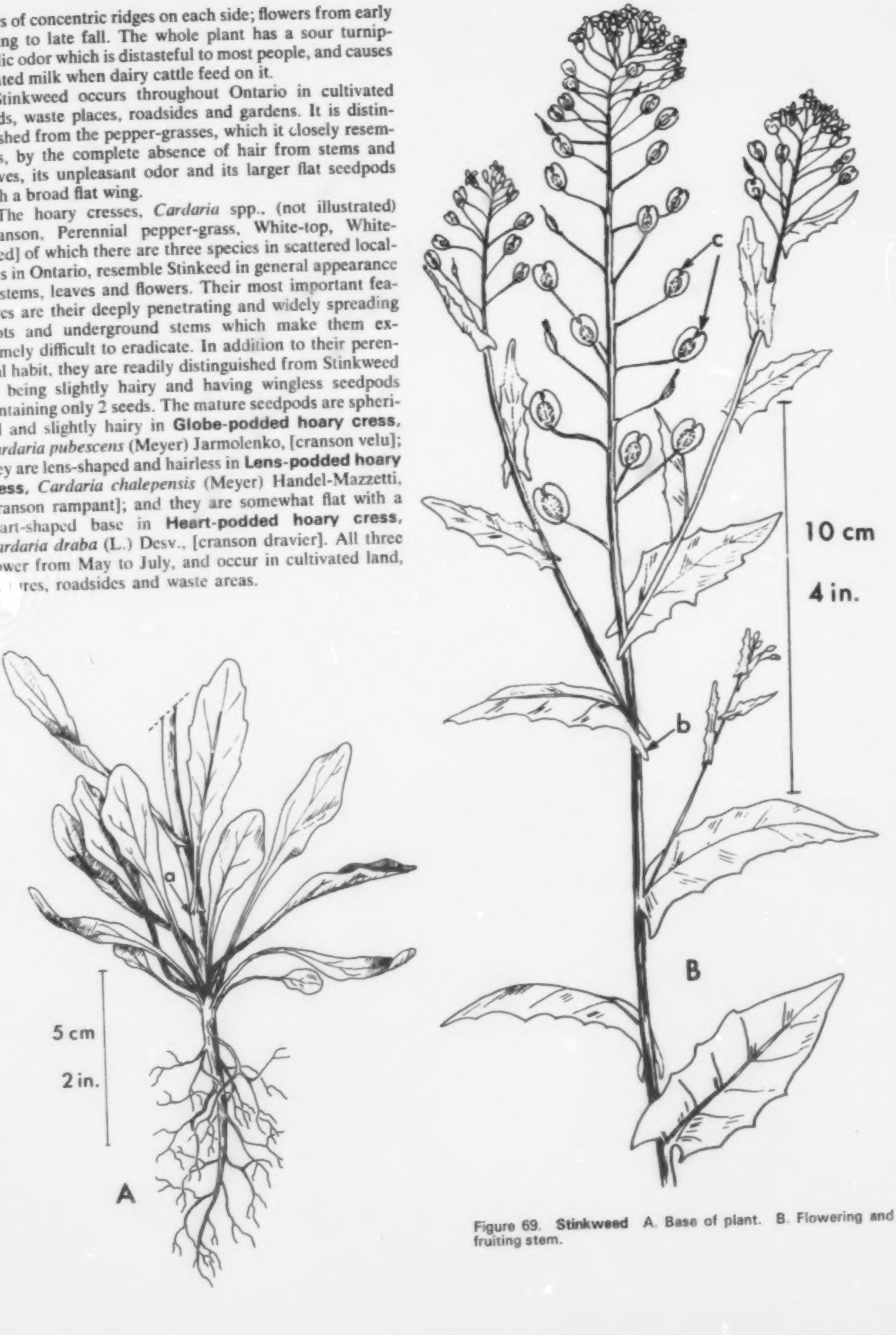
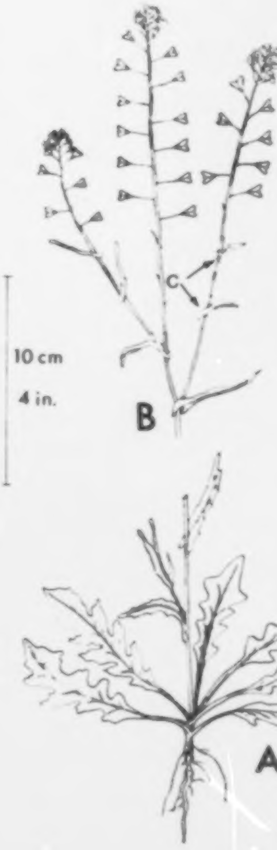


Figure 69. **Stinkweed** A. Base of plant. B. Flowering and fruiting stem.

**Shepherd's-purse**, *Capsella bursa-pastoris* (L.) Medic., (Figure 70) [bourse-à-pasteur] Annual or winter-annual, reproducing only by seed. Stems erect 10 – 60 cm (4 – 24 in.) high, branched above or throughout; first leaves in rosette at the ground surface, stalked, the blades very variable, oblong, 5 – 10 cm (2 – 4 in.) long, shallowly to deeply and coarsely toothed or pinnately divided; stem leaves alternate (1 per node), usually much smaller, stalkless, with a few, shallow, scattered teeth or almost lacking teeth, and with 2 narrow, pointed basal lobes (a) which clasp the stem; stems and leaves covered with fine star-shaped hair or are hairless; flowers resemble Wild mustard in form but are white and much smaller (3 – 8 mm, ⅛ – ⅓ in. across) in rounded clusters at the ends of stems and branches; seedpods on short (1 – 2 cm, ⅖ – ⅘ in.) stalks which spread out from the stem, more or less triangular to heart- or valentine-shaped, the pointed end attached to the stalk and the 2 lobes at the outer end; seed-containing section divided by a narrow septum (membranous partition) with several seeds on each side; seeds about 1 mm (1/25 in.) long, oblong, dull orange-yellow to slightly reddish. Flowers from early spring to late fall.

Shepherd's-purse occurs throughout Ontario in grainfields, waste areas, roadsides, gardens and lawns. It is distinguished from all other plants in the Mustard Family by its valentine-shaped seedpods, hence "purse" in its English name. In the rosette stage, it can be distinguished from other mustards with lobed basal leaves by usually being hairy, the lobes or divisions more or less uniform on each side and their generally small size.

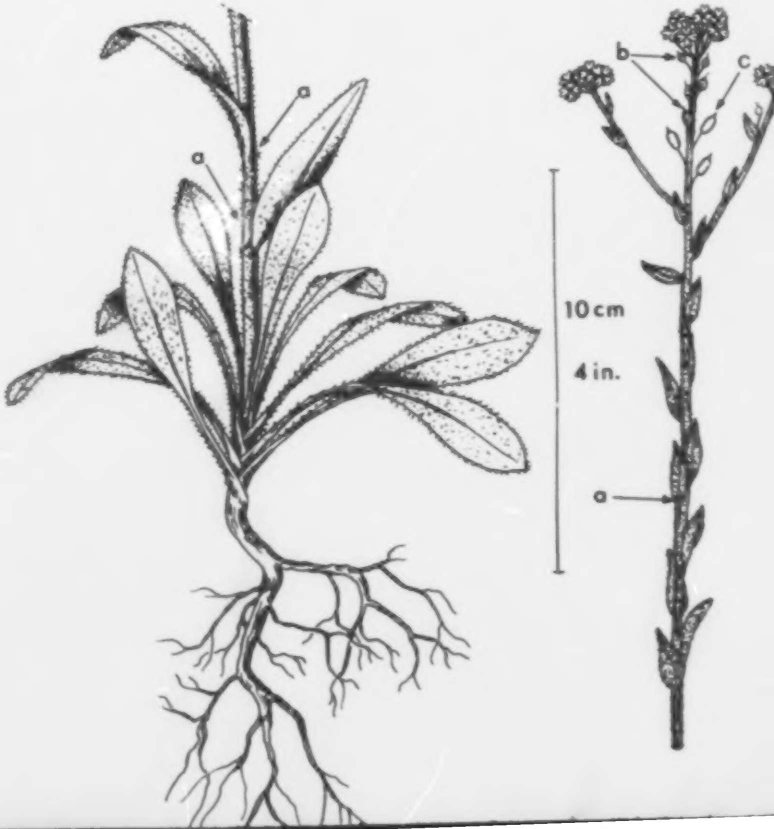
Figure 70. **Shepherd's-purse** A. Base of plant. B. Flowering and fruiting stem.



**Hoary alyssum**, *Berteroa incana* (L.) DC., (Figure 71) [berteroa blanche] Annual or short-lived perennial, reproducing only by seed. Stems erect, 20 – 70 cm (8 – 28 in.) high, usually branched above and 1 to many stems per root; first leaves in a basal rosette, long-stalked, broadest near the tip; middle leaves similar but smaller; upper leaves stalkless, either elliptic or broader near the base but not clasping the stem (a), tapering to a long narrow point; all leaves alternate (1 per node), entire (without teeth); stems, leaves, sepals and seedpods covered with very short star-shaped hair giving the whole plant a gray hoary appearance; stems frequently purplish; flowers like Wild mustard but smaller (3 mm, ⅛ in. across) with deeply lobed, white petals, clustered near the tips of the stems and branches; seedpods on erect stalks and held close to the stem; pods (b) elliptical or oval, 5 – 8 mm (⅕ – ⅓ in.) long by 3 – 4 mm (⅛ – ⅙ in.) wide, slightly flattened; septum (c) (membranous partition) as wide as the greatest width of the pod and usually remaining on the stalk after the sides of the pod have fallen off when mature; each pod containing 4 to 12 reddish-brown to brownish lens-shaped seeds 1 – 1.5 mm (1/25 – 1/16 in.) long with a faint suggestion of a wing around the edge. Flowers from late May to autumn, maturing and shedding seeds throughout the summer.

Hoary alyssum occurs throughout Ontario but is more common in the southern part, particularly on sandy soils. It is found in hay and pasture fields, meadows, roadsides, waste areas and occasionally in gardens or poorly kept lawns. It is distinguished from other mustards with rounded seedpods by its stalkless, non-clasping stem leaves (a) with smooth (entire) margins, the dense star-branched hair that gives the whole plant a hoary appearance, and the broad septum (membranous partition) (c) in the oval, hoary seedpods, the pods being held erect and very close to the stem.

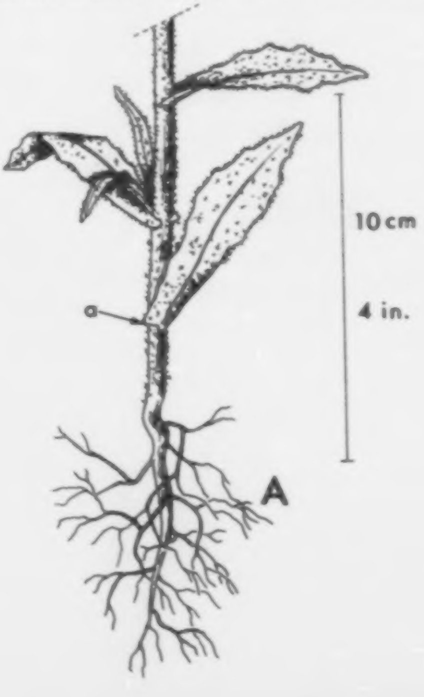
Figure 71. **Hoary alyssum**



**Small-seeded false flax**, *Camelina microcarpa* Andrz. ex DC., (Figure 72) [caméline à petits fruits] Annual or winter annual, reproducing only by seed. Stems erect, 30 – 90 cm (1 – 3 ft) high, somewhat branched, lower portion rough-hairy; young winter annual plants forming a rosette of leaves in the fall but annual plants do not (A); stem leaves alternate (1 per node), the lower ones narrowly oval, stalkless, broadest near the middle, 2 – 10 cm (1 – 4 in.) long, somewhat clasping (a, A); middle and upper leaves stalkless, widest near the base, tapering towards the slender tip and clasping the stem with 2 basal lobes (b, B); flowers resembling Wild mustard but smaller and pale yellow, in rounded clusters at ends of stems and branches; seedpods shaped like a slightly flattened teardrop, 4 – 6 mm (⅙ – ¼ in.) long, tipped with a slender beak or style 1 – 2 mm (1/25 – 1/12 in.) and on slender stalks which spread 6 – 25 mm (¼ – 1 in.) from the stem; septum (membranous partition) as wide as the greatest width of the pod and often remaining on the stalk when the sides of the pod drop off; seeds 0.8 – 1.2 mm (1/30 – 1/20 in.) long, reddish-brown to dark reddish-brown. Flowers from late May until early autumn, frequently dropping seed while still flowering.

Small-seeded false flax occurs throughout Ontario but is more common in the southern part of the province, infesting grainfields, seeded pastures, abandoned fields, waste places and roadsides.

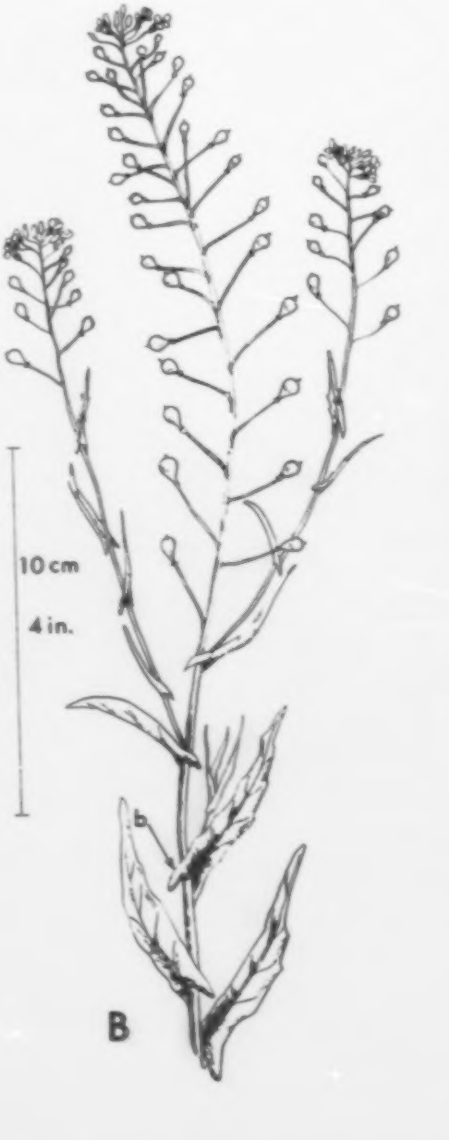
Two other kinds of false flax may be found in Ontario in similar situations but are not as common as Small-seeded false flax. Both resemble it in general appearance and habit of growth, the main distinguishing features being in the seedpods and seeds. **Large-seeded false flax**, *Camelina sativa* (L.) Crantz. (not illustrated) [caméline faux lin], has oblong seeds about 2 mm (1/12 in.) long in teardrop-shaped seedpods usually 6 mm (¼ in.) or longer, and its stems are not as hairy. **Flat-seeded false flax**, *Camelina parodii* Ibarra and La Porte, (not illustrated) [caméline à graines plates, *Camelina dentata* Pers.], has large, flat seeds which are round in outline and about 2.5 mm (1/10 in.) diameter in pods that tend to be flat across the top rather than rounded.



All three kinds of false flax are distinguished from other members of the Mustard Family with small, nearly round pods by their light yellow flowers followed by very smooth, hairless, teardrop-shaped seedpods having a broad septum (membranous partition) as wide as the pod, their narrowly triangular or somewhat arrowhead-shaped stem leaves with clasping bases, and the stems and leaves roughened with tiny star-shaped hair.

**Ball mustard**, *Neslia paniculata* (L.) Desv., (not illustrated) [neslie paniculée, Neslia, Yellow weed], resembling Small-seeded false flax in general habit and appearance. It is distinguished by having deep yellow flowers and small (3 mm, ⅛ in. diameter) nearly spherical seedpods. Each pod contains a single seed, has a rough surface, does not split open at maturity but the whole pod breaks off. It occurs throughout Ontario, especially the northern and northwestern parts, in grainfields and waste places.

Figure 72. **Small-seeded false flax** A. Base of annual plant. B. Flowering and fruiting stem.



# ORPINE FAMILY (Crassulaceae)

**Mossy stonecrop,** *Sedum acre* L., (Figure 73, Plate 5) [orpin acre, Hen-and-chickens, Stonecrop, Yellow stonecrop] Perennial, reproducing by seed, by creeping horizontal stems rooting at the nodes and by bits of broken stem with a few leaves which also root at the nodes and start new patches. Stems creeping, densely matted, with many short, semierect branches, 5 – 15 cm (2 – 6 in.) high and covered with numerous, small, alternate (1 per node), overlapping, succulent (fleshy), ovoid leaves (a) 2 – 10 mm (1/12 – ⅖ in.) long and round in cross-section; flowers (b) yellow, 8 – 10 mm (⅓ – ⅖ in.) across in small clusters, each flower with 5 green sepals, 5 yellow petals, 10 stamens and 5 pistils; most of the pistils becoming pointed seedpods containing several seeds.

Mossy stonecrop is a common lawn weed in the central part of southern Ontario and occasionally in other regions as well. It was introduced as an ornamental for rock gardens because of its ability to grow well in coarse, sandy, shallow soils low in fertility. In these situations, it can crowd out grass and become a serious lawn weed. It also occurs in gardens, roadsides and waste areas.

Several other kinds of stonecrops (*Sedum* spp.) may escape from cultivation but are usually less common. Their flowers range from white through yellows and pinks or orange or reddish-purple; their succulent leaves may be round in cross-section or quite flat, and their stems may be up to 60 cm (2 ft) high.

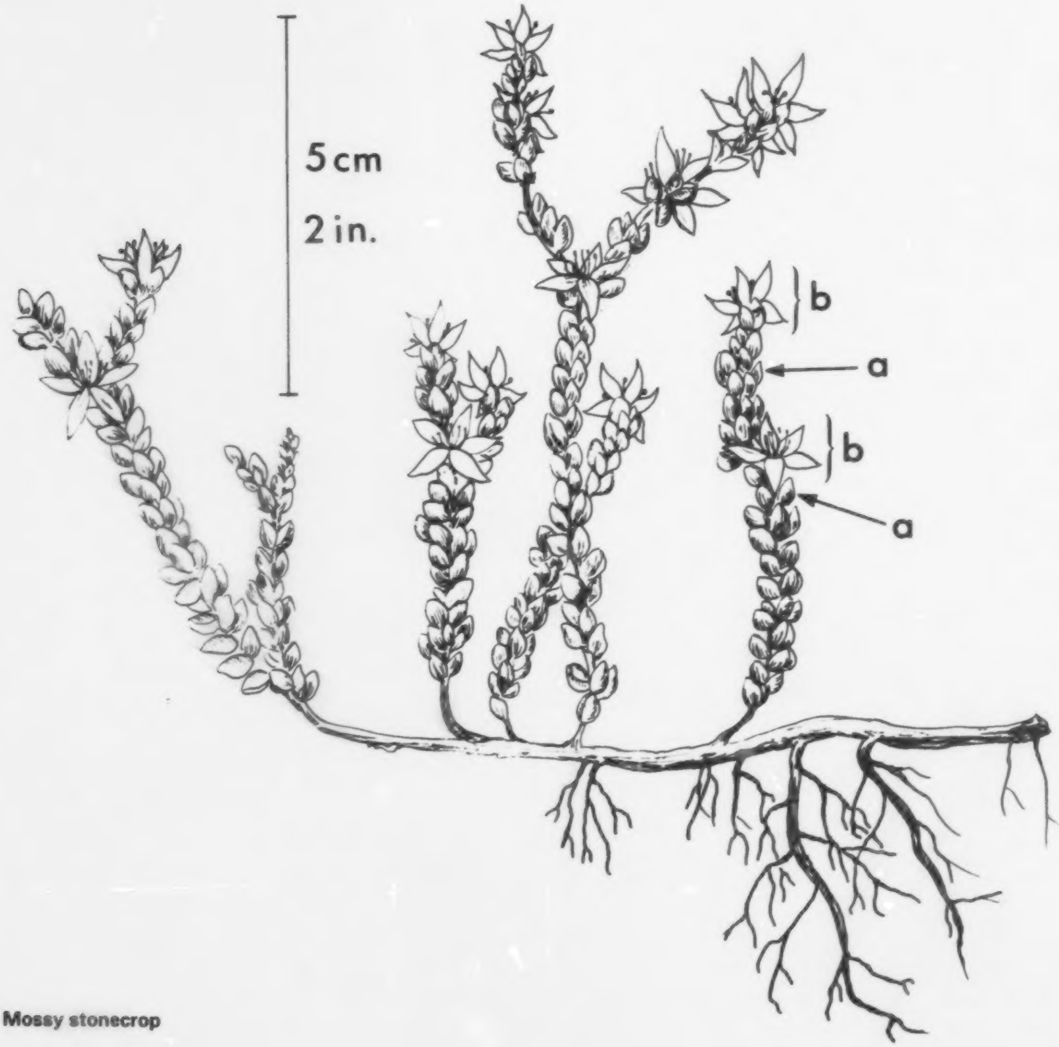


Figure 73. **Mossy stonecrop**

# ROSE FAMILY (Rosaceae)

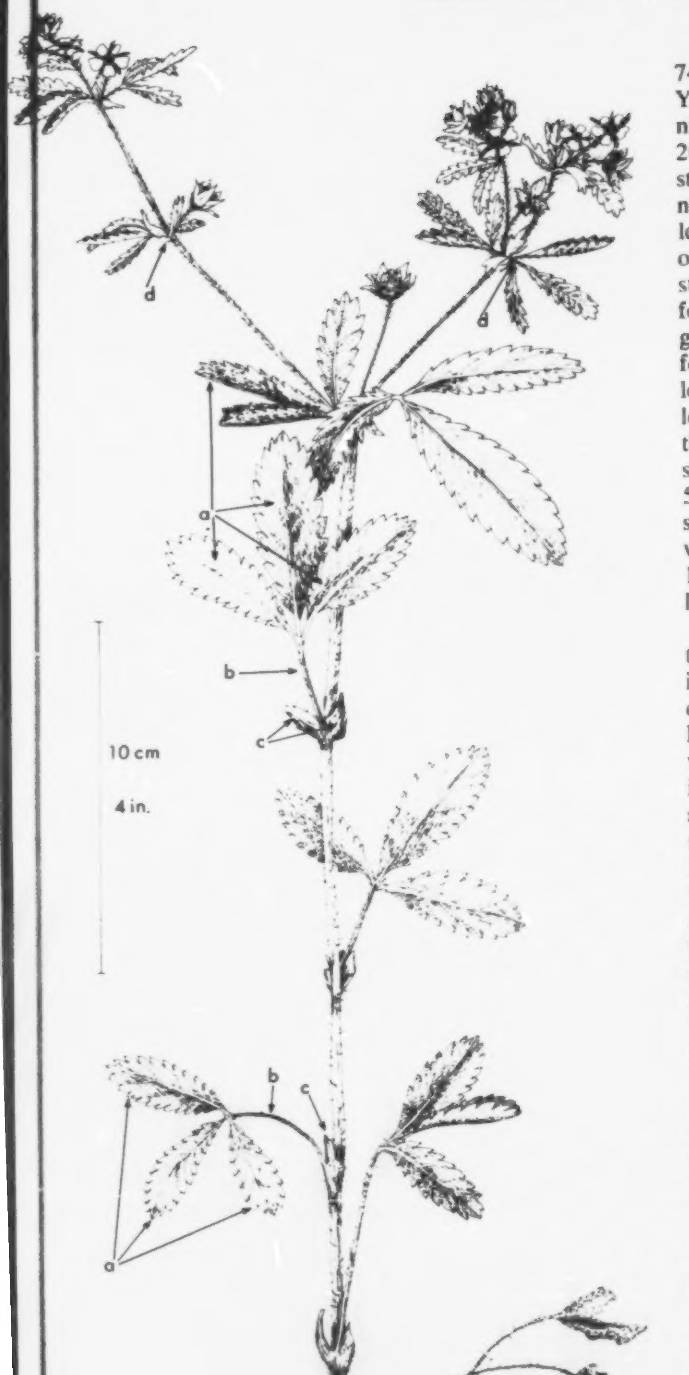


Figure 74. Rough cinquefoil

**Rough cinquefoil**, *Potentilla norvegica* L., (Figure 74, Plate 13) [potentille de Norvege, Upright cinquefoil, Yellow cinquefoil] Annual, biennial or short-lived perennial, reproducing only by seed. Stems 20 – 50 cm (8 – 20 in.) high, usually branched, sometimes with 2 or more stems from the same root, hairy throughout; leaves alternate (1 per node), compound; 1 leaf consisting of 3 leaflets (a) at the end of a leafstalk (petiole) (b) and a pair of stipules (c) at the base of the leafstalk where it joins the stem; each leaflet oblong to roundish with coarse, sharp, forward-pointed teeth; leaves in a rosette early in the growing season and, at this stage, frequently mistaken for strawberry; leaves alternate (1 per node), lower ones long-stalked; uppermost leaves stalkless with the 3 leaflets and pair of stipules apparently attached directly to the stem (d); flowers about 6 mm (¼ in.) across, on short stalks from leafy branches in the upper part of the plant; 5 pale yellow petals about the same length as the green sepals, a ring of many stamens around numerous pistils which mature into a cluster of seeds, each seed about 1 mm (1/25 in.) long, yellowish to pale brown and ridged lengthwise. Flowers in June and July.

Rough cinquefoil occurs throughout Ontario in pastures, meadows, waste areas, roadsides, and occasionally in gardens and cultivated fields. Rosettes of Rough cinquefoil are distinguished from strawberry plants by having teeth all around the margins of all 3 leaflets, whereas in strawberry the lower ¼ to ⅓ of each leaflet is usually without teeth. Older plants have robust, erect stems with several leaves and yellow flowers whereas strawberry has a slender, short, nearly leafless stem with loose clusters of white flowers. It is distinguished from the yellow-flowered buttercups by its 3-leaflet leaves and the presence of a pair of stipules (c) at the base of each leafstalk (b). Rough cinquefoil is distinguished from other cinquefoils by the combination of 3-leaflet (a) leaves green on both surfaces, and small (6 – 10 mm, ¼ – ⅖ in. across), pale yellow flowers in which the sepals and petals are of about equal length.

**Sulphur cinquefoil**, *Potentilla recta* L., (Figure 75) [potentille dressée, Five-finger cinquefoil, Rough-fruited cinquefoil, Upright cinquefoil, Yellow cinquefoil] Similar to Rough cinquefoil in general habit and appearance but distinguished by being perennial from a coarse, fibrous root system; multiple-stemmed, the stems often taller (20 – 80 cm, 8 – 32 in. high); leaves green on both sides, palmately compound with usually 5 to 7 narrow, coarsely toothed, hairy leaflets (a) at the tip of the leafstalk (petiole) (b) (like fingers on the palm of the hand) and a pair of stipules (c) at the base of each leafstalk (b); first 2 or 3 true leaves (d) on seedling not divided; flowers large, 2 – 2.5 cm (⅘ – 1 in.) across; petals deep yellow to sulfur-yellow, longer than the green sepals; seeds prominently wrinkly-ridged. Flowers from early June until fall.

Sulphur cinquefoil occurs throughout Ontario being common in noncultivated soils such as pastures, meadows, waste areas, clearings in woods, and roadsides. It is distinguished by its 5 to 7 leaflets palmately arranged at the end of a leafstalk like the fingers of a hand, but sometimes with only 3 leaflets per leaf or the leaf not divided on the smaller flowering branches; the leaves always green on both surfaces, and the large, deep yellow to sulfur-yellow flowers with petals longer than sepals.

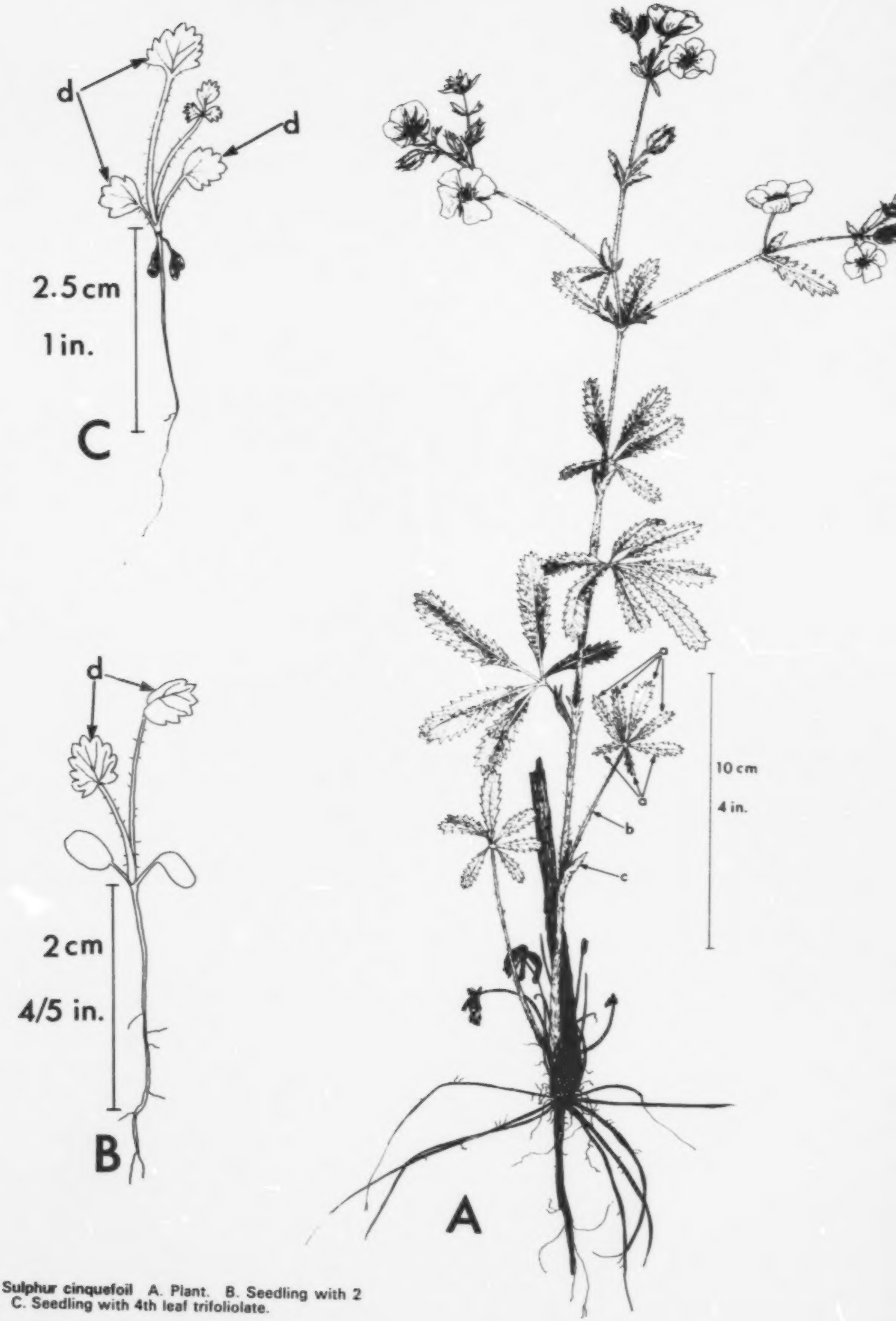

d
d
2.5 cm
1 in.
C
d
2 cm
4/5 in.
B
a
a
b
c
10 cm
4 in.
A

Figure 75. Sulphur cinquefoil A. Plant. B. Seedling with 2 true leaves. C. Seedling with 4th leaf trifoliolate.

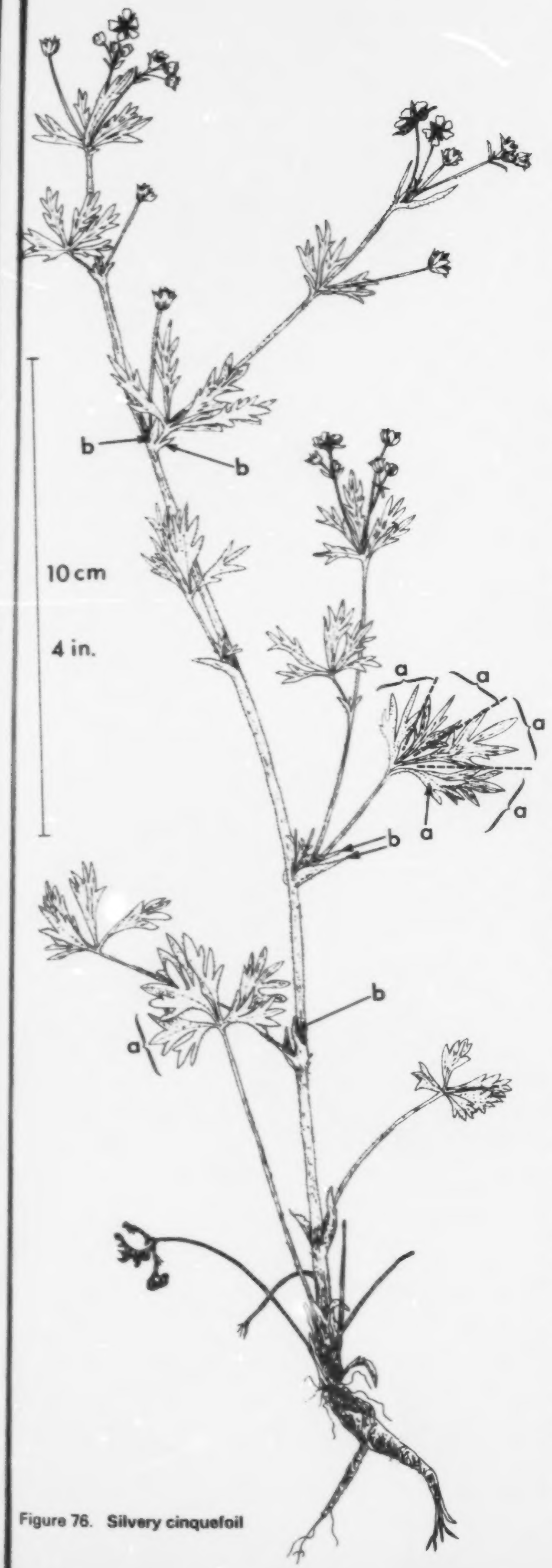


Figure 76. Silvery cinquefoil

**Silvery cinquefoil**, *Potentilla argentea* L., (Figure 76) [potentille argentée] Perennial, reproducing only by seed. Stems 10 – 50 cm (4 – 20 in.) long, 1 to several from each stout perennial crown, erect or spreading or nearly prostrate; early leaves in a dense basal rosette; basal and stem leaves long-stalked, palmately compound with 3 or usually 5 to 7 leaflets (a) which are dark green on the upper surface and silvery-gray on the undersurface, each leaflet shallowly and coarsely toothed to very deeply lobed; each leafstalk or stalkless upper leaf with 2 slender, pointed stipules (b); flowers yellow, small (6 – 10 mm, ¼ – ⅖ in. across), in branching clusters at ends of branches, petals about the same length as sepals. Flowers from late May until autumn.

Silvery cinquefoil occurs throughout Ontario, usually on coarse-textured, well-drained soils in open fields, pastures, waste areas, roadsides, and occasionally in lawns. It is distinguished by its palmately compound leaves (a) with coarsely toothed or lobed leaflets which are green on the upper surface but silvery-gray on the undersurface, and its small yellow flowers with petals and sepals of equal length.

**Silverweed**, *Potentilla anserina* L., (not illustrated) [potentille ansérine], has a very different habit of growth from Silvery cinquefoil. Its long, slender reddish stems trail over the ground surface, like strawberry runners, with internodes often 10 – 15 cm (4 – 6 in.) long, frequently rooting and starting new plants at each node, therefore reproducing both by seed and by runners. Unlike the other cinquefoils, the leaves of Silverweed are pinnately compound with many leaflets along each side (as in Small burnet, Figure 78) and often with a mixture of large and small leaflets as in Yellow avens (Figure 77), the leaflets silvery-gray on the undersurface and usually dark green on the upper surface; central stalk of each compound leaf and the runners often pinkish to reddish; flowers yellow on stalks about 2 – 10 cm (1 – 4 in.) high from nodes on the runners, 2 cm (⅘ in.) across and with petals a little longer than sepals. Flowers from early June to autumn. It occurs throughout Ontario, usually on coarse-textured soils, on beaches, along rivers, in waste areas, roadsides and occasionally in lawns.

**Yellow avens**, *Geum aleppicum* Jacq. var. *strictum* (Ait.) Fern., (Figure 77) [benoîte stricte, Burs] Perennial, reproducing only by seed. Stems erect, to 1 m (40 in.) high, frequently branched above. Leaves very variable, rosette leaves long-stalked, pinnately compound with a large terminal leaflet (a) and a mixture of large (b) and small (c) leaflets along each side of the central stalk, leaflets coarsely toothed, hairy and green on both surfaces; stem leaves alternate (1 per node), similar but with shorter stalks, especially towards the top of the stem and each with a pair of green leaflet-like stipules (d) where the leafstalk (e) joins the stem; upper leaves stalkless, sometimes just shallowly toothed or lobed without being divided into leaflets; flowers 1 – 2 cm (⅖ – ⅘ in.) across, with 5 deep-yellow to orange petals, 5 smaller sepals, numerous stamens and pistils in a dense central cluster; at maturity the flower stalk lengthening and the cluster of pistils enlarging into a nearly spherical brown to dark brown head or bur about 2 cm (⅘ in.) diameter, each single-seeded pistil has a sharply hooked tip (f) which clings to fur, clothes and skin. Flowers from early June to late summer.

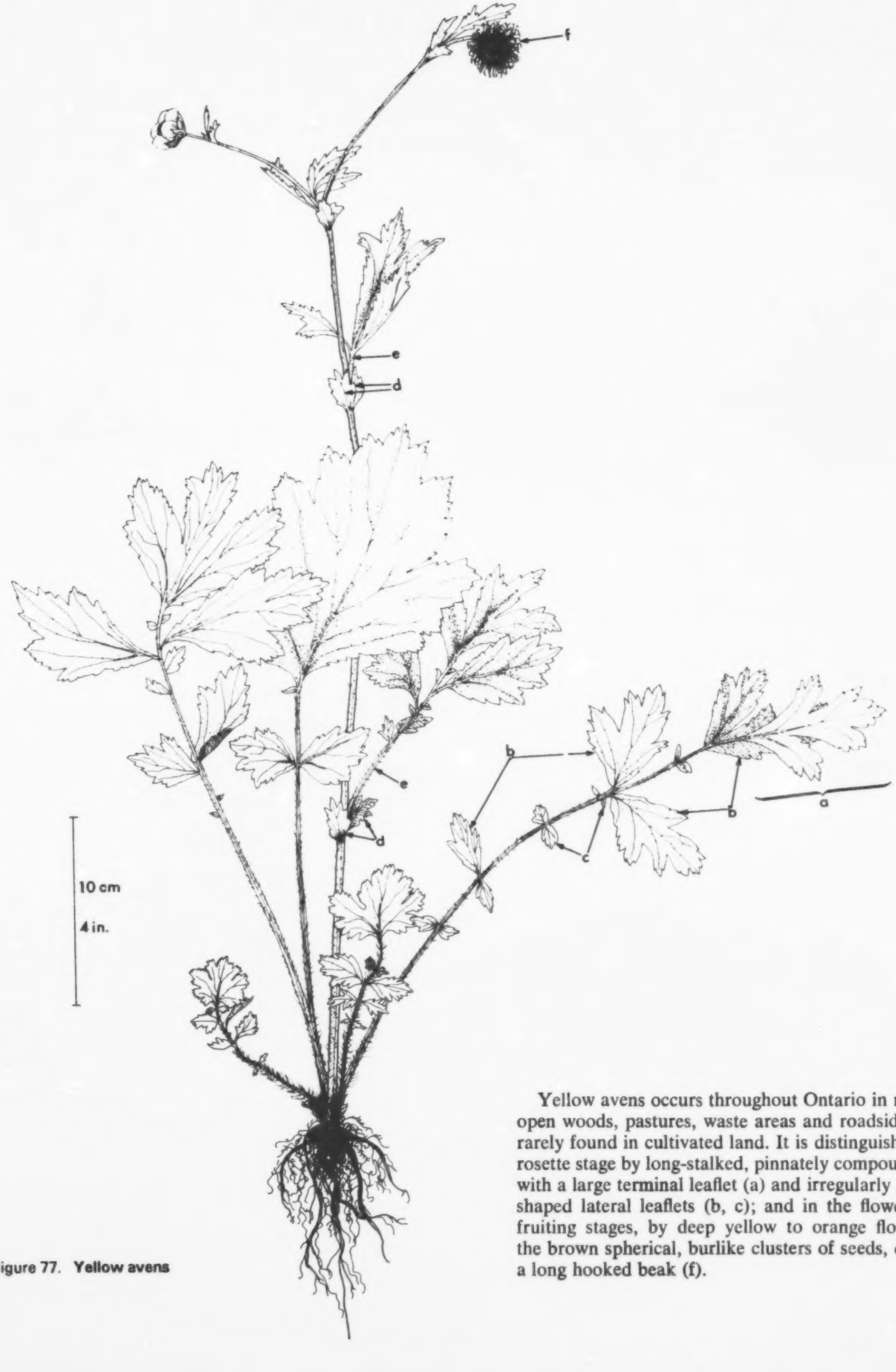


Figure 77. **Yellow avens**

Yellow avens occurs throughout Ontario in meadows, open woods, pastures, waste areas and roadsides, but is rarely found in cultivated land. It is distinguished in the rosette stage by long-stalked, pinnately compound leaves with a large terminal leaflet (a) and irregularly sized and shaped lateral leaflets (b, c); and in the flowering and fruiting stages, by deep yellow to orange flowers and the brown spherical, burlike clusters of seeds, each with a long hooked beak (f).

**Small burnet,** *Sanguisorba minor* Scop., (Figure 78) [petite pimprenelle, Salad burnet] Perennial, reproducing only by seed. Stems 20 – 70 cm (8 – 28 in.) high, spreading or erect from the short thick underground rootstalk, slender, wiry, usually branched in the upper part; rosette leaves numerous, pinnately compound with up to 17 small oval leaflets (a), each with 3 to 7 prominent teeth on each side, usually lighter green below than above; stem leaves alternate (1 per node), scattered, shorter and have fewer leaflets; flowers individually very small but clustered together in dense ovoid heads on long leafless branches; each flower has 4 small, green or brown sepals but no petals, the lower flowers in each head having no pistils but many stamens with long drooping filaments; the upper flowers having 2 pistils but no stamens, or being bisexual with both stamens and pistils; each pistil producing a pair of semi-ovoid hard seeds. Flowers from May to July.

Small burnet occurs in several scattered localities in southern Ontario, usually in coarse sandy or gravelly soils, in pastures, meadows, waste areas, and roadsides.

**Hawthorn,** *Crataegus* spp., (Figure 79) [aubétine, Haw, Hawes, Thorn, Thornbush] Shrubs, or small trees, reproducing only by seed; trunks and branches gray-brown to brownish, usually with long (1 – 7.5 cm, ⅖ – 3 in.) stout thorns, the thorns usually simple (a) (unbranched) or rarely compound with 2 or more sharp-pointed smaller spines branching from the main thorn; leaves alternate (1 per node) on young, growing branch tips, clustered on short, lateral spurs on older branches, very variable but usually toothed and often lobed as well; flowers few to many in clusters along the branches; each flower with 5 small sepals, 5 larger white or pinkish petals and many stamens; fruit apple-like, reddish, 1 – 3 cm (⅖ – 1⅕ in.) diameter, with a thin coarse pulp and 1 to 5 large hard seeds. Flowers in late spring or early summer; fruit may remain on the branches long after the leaves have fallen in autumn.

Several species of Hawthorn are native in Ontario. Much hybridization has occurred among these, and the taxonomy of this genus is very complicated. Hawthorns occur throughout southern Ontario, often being troublesome in old pastures, cleared areas, borders of woods, and along fencerows.

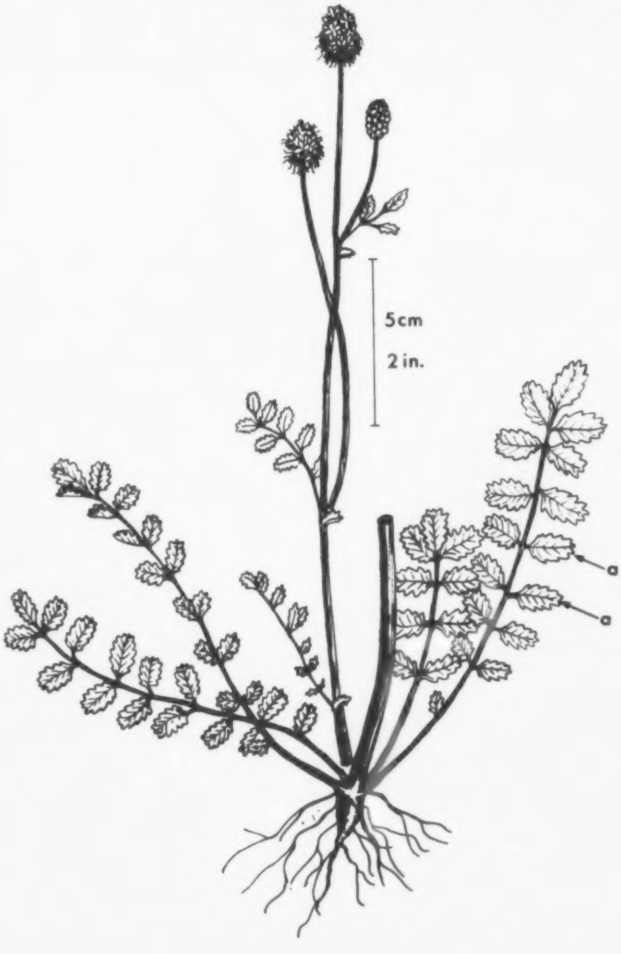


Figure 78. Small burnet

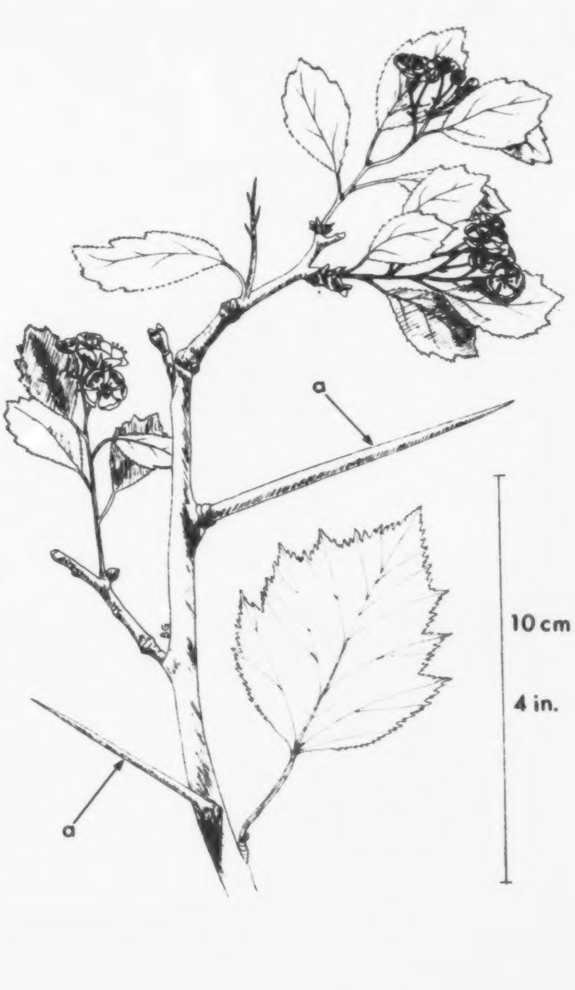


Figure 79. Hawthorn

# LEGUME or BEAN FAMILY (Leguminosae)

**Low hop clover**, *Trifolium campestre* Schreb., (Figure 80) [trèfle couché, Hop clover, *Trifolium procumbens* L.] Annual, reproducing only by seed. Stems erect, 10 – 40 cm (4 – 16 in.) high, usually much-branched and finely hairy; leaves alternate (1 per node), compound, trifoliolate, consisting of 2 stalkless lateral leaflets (a) and a distinctly stalked (b) terminal leaflet (c) at the tip of the leafstalk (d), and with a pair of small ovate stipules (e) at the base of the leafstalk (d); flowers individually small but 20 to 30 together in dense, elongated headlike clusters, each small flower resembling a bean flower but yellow and with conspicuous diagonal veins on each side. Flowers from June to August.

Low hop clover occurs in scattered localities in southern Ontario, usually in old pastures, waste places and along roadsides. It is distinguished by its annual habit, the stalked (b) terminal leaflet (c) with ovate stipules (e) and small yellow bean-like flowers in dense elongated clusters.

**Black medick**, *Medicago lupulina* L., (Figure 81, Plate 6) [lupuline medic, Yellow-clover] Annual, reproducing only by seed. Stems wiry, as much as 80 cm (32 in.) long and lying prostrate on the ground or much shorter and erect or spreading; root slender but very strong and difficult to pull out or hoe off; leaves alternate (1 per node), compound with 3 small oval leaflets shallowly toothed at the tips, the central leaflet with a definite stalk (a), the leafstalk with a pair of thick, stipules (b) at its junction with the stem; flowers in dense headlike clusters, about 1 cm (⅖ in.) diameter on long stalks; each flower very small, yellow, similar in form to pea or bean flowers; seedpods black (hence the common name), slightly coiled, prominently ridged and hairy or smooth. Flowers from early spring to late autumn, dropping its seed most of that time.

Black medick occurs throughout Ontario in most soil textures. A particularly common weed in lawns, it also grows in gardens, waste places, roadsides, pastures and sometimes in cultivated fields. It is distinguished by its compound leaves having 3 oval leaflets, all with shallow teeth towards their tips but only the central one with a definite stalk; the small, nearly spherical clusters of yellow flowers on stalks usually longer than the leaves; and the small clusters of black coiled seedpods produced from those flower heads.

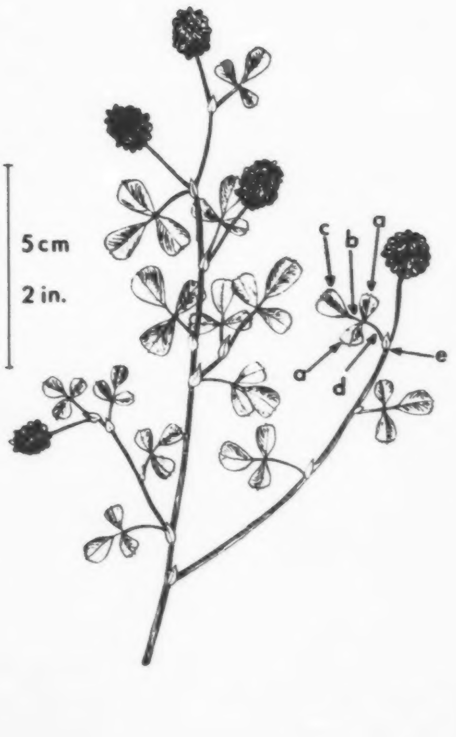


Figure 80. Low hop clover

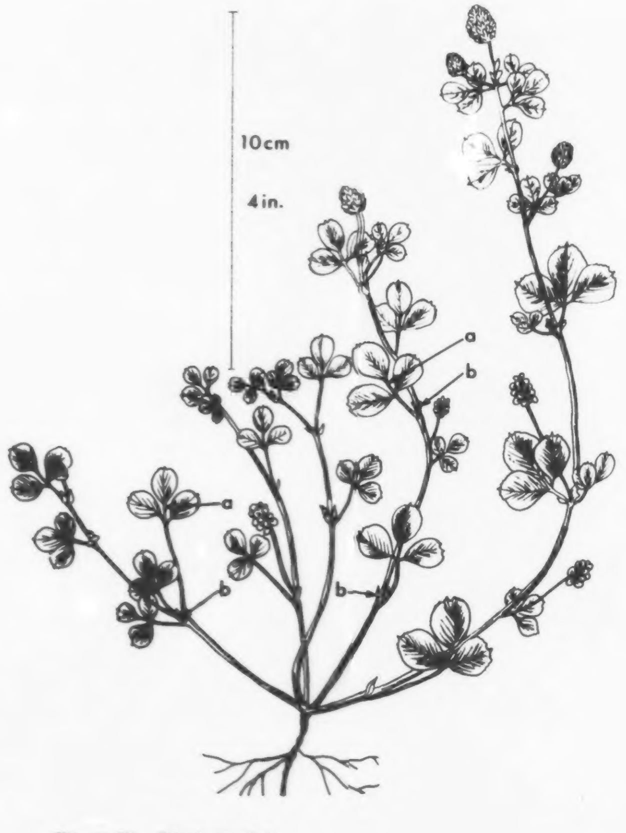


Figure 81. Black medick

**White clover**, *Trifolium repens* L., (not illustrated) [trèfle blanc, White dutch clover], similar to Black medick but is perennial, its leaflets somewhat larger, all 3 stalkless, each usually with a V-shaped whitish mark on the upper surface, and has larger white flowers. A plant of mixed virtue, White clover is common throughout Ontario in pastures, lawns, meadows, roadsides, waste places and cultivated land, having been intentionally planted as a forage or ground cover in many situations and persisting as an unwanted weed in others.

**Bird's-foot trefoil**, *Lotus corniculatus* L., (Figure 82) [lotier corniculé, Yellow trefoil] Perennial, reproducing only by seed. Stems 30 – 60 cm (12 – 24 in.) long, prostrate or spreading to erect, usually several from a tough root-crown; leaves alternate (1 per node), pinnately compound, each consisting of 5 leaflets; the lower 2 leaflets (a) produced very close to the stem and separated from the outer 3 by a definite stalk (b), resembling stipules but true stipules not produced; flowers pealike, yellow or occasionally reddish-orange, in small umbels raised above the leaves at the tips of long naked stalks; seedpods 2 to 4 cm (⅘ – 1⅗ in.) long, round, slender, brownish to blackish, and hanging or spreading horizontally. Flowers from June to August.

Bird's-foot trefoil is a cultivated forage legume but it escapes from cultivation and may become quite common along roadsides, in uncultivated fields, waste areas and occasionally in lawns throughout most of Ontario. It is distinguished by its tough perennial root-crown, branching stems, compound leaves with 5 leaflets, the lowermost pair (a) resembling stipules because they are produced very near the stem, its clusters of moderately sized flowers with yellow to reddish corollas 10 – 14 mm (⅖ – ⅝ in.) long and the umbel-like clusters of slender seedpods.

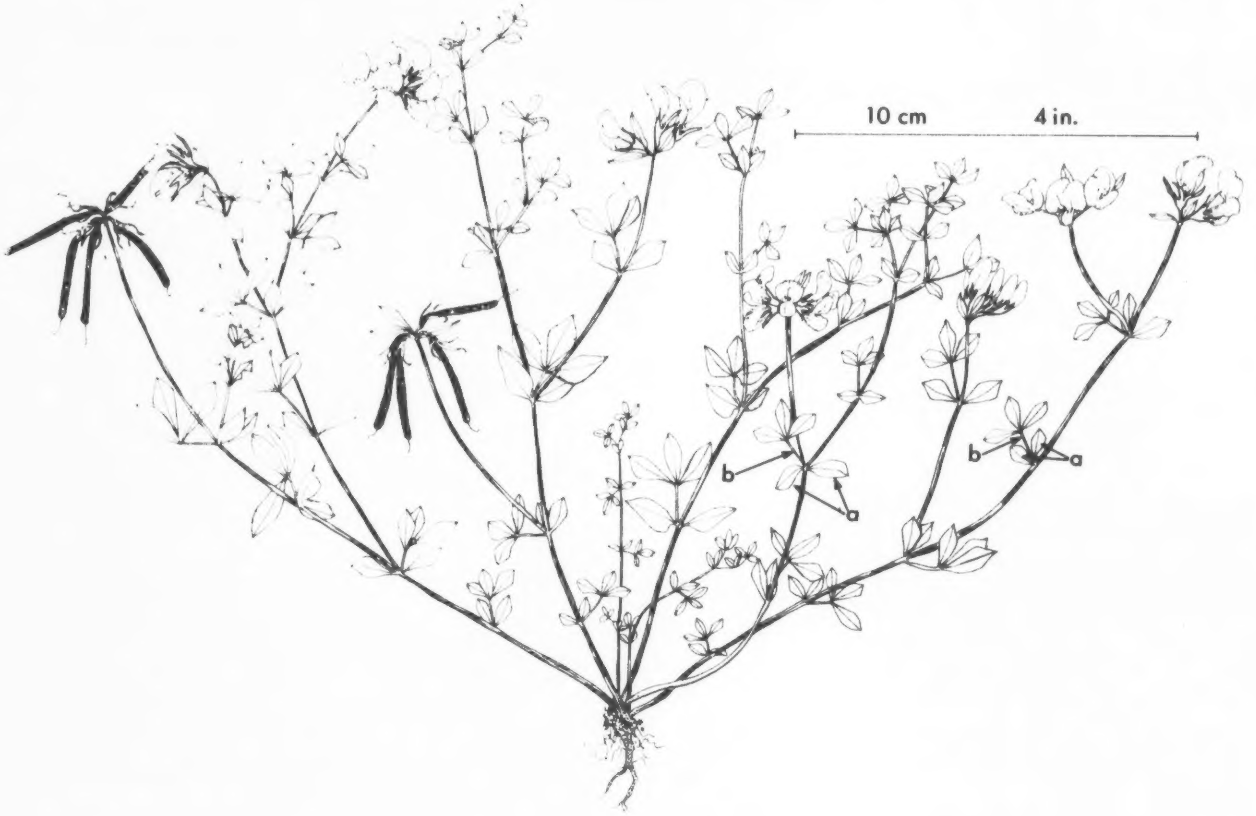


**Figure 82. Bird's-foot trefoil**

**Narrow-leaved vetch,** *Vicia angustifolia* Reichard, (Figure 83) [vesce à feuille étroite] Annual or winter annual, reproducing only by seed. Stems smooth, weak, at first erect but later lying on the ground or climbing on nearby plants, 40 – 100 cm (16 – 40 in.) long; leaves alternate (1 per node), pinnately compound with curly, branched tendrils (a) and usually 2 to 5 pairs of long narrow leaflets each tipped with a hairlike point (b); flowers (c) 1 or 2 together on very short (to 3 mm, ⅛ in. long) stalks in the axils of leaves, pealike, violet to purple or rarely white, 12 – 18 mm (½ – ¾ in.) long; seedpods (d) about 5 cm (2 in.) long, at first flat but becoming round and black at maturity and splitting into two corkscrew-like sections (e), releasing 10 to 16 nearly spherical black seeds. Flowers in early summer.

Narrow-leaved vetch is found mostly in southern Ontario where it occurs in fields, waste places and fencerows. It is distinguished from other true vetches (all having compound leaves ending in tendrils) by its annual or winter-annual habit, its leaves usually with fewer than 10 narrow leaflets and its flowers (c) occurring singly or in pairs on very short stalks in the leaf axils (angle formed between stem and petiole or leafstalk).

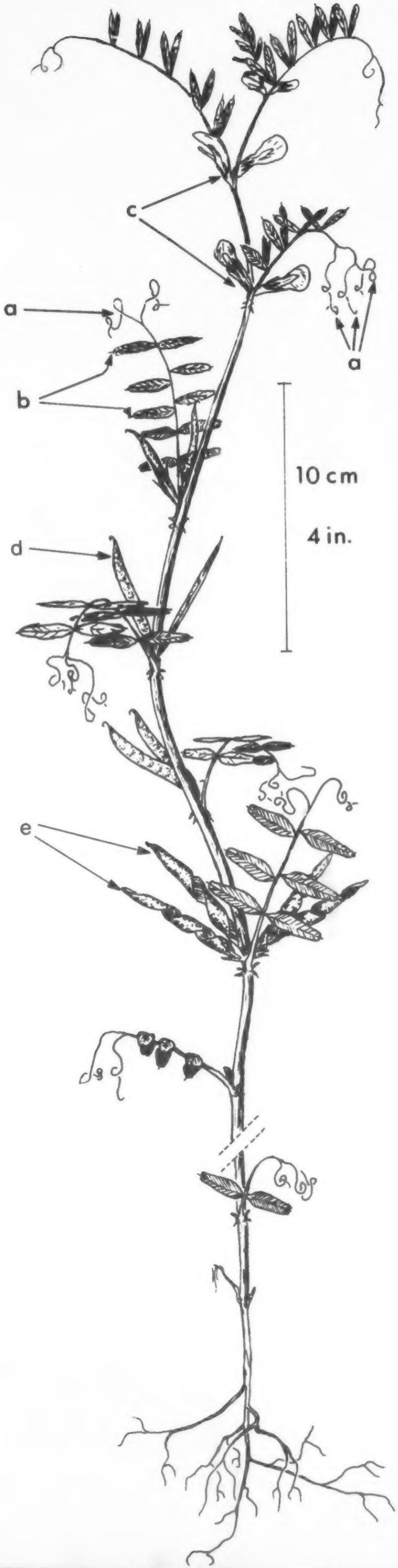


Figure 83. Narrow-leaved vetch

**Tufted vetch,** *Vicia cracca* L., (Figure 84) [vesce jargeau, Bird vetch] Perennial, reproducing by seed and by spreading underground rootstocks. Stems 40 cm – 2 m (16 – 80 in.) long, weak, wiry, trailing on the ground or climbing on nearby objects; leaves alternate (1 per node), pinnately compound with 8 to 12 pairs of bristle-tipped leaflets (a) and branching tendrils (b) at the end; the plant climbing by means of these tendrils; flowers (c) bluish-purple, pealike, about 12 mm (½ in.) long, often 30 or more crowded together on one side of a long bare stalk; seedpods (C) pealike, 10 – 25 mm (⅖ – 1 in.) long by 4 – 6 mm (⅙ – ¼ in.) wide, partly flattened, light brown, containing 2 to 8 rounded to oval reddish-brown seeds; seeds 2.5 – 3 mm (1/10 – ⅛ in.) across and marked with a prominent, long, whitish or reddish-brown scar. Flowers from early June to late autumn.

Tufted vetch occurs throughout Ontario in cultivated fields, pastures, waste places, roadsides and gardens. It is distinguished by its spreading underground rootstalks, compound leaves with 8 to 12 pairs of leaflets and branching tendrils (b), many flowers (c) clustered on one side of a long stalk, and its flattened brownish seedpods (C) containing up to 8 rounded seeds, each with a scar extending ¼ to ⅓ of the way around.

**Hairy vetch,** *Vicia villosa* Roth, (not illustrated) [vesce velue], closely resembling Tufted vetch but is distinguished by being an annual or, occasionally, biennial, and has seedpods 20 – 40 mm (⅘ – 3½ in.) long by 6 – 12 mm (¼ – ½ in.) wide, also containing up to 8 seeds, but these seeds have the scar running only 1/12 to ⅕ of the way around each seed. Hairy vetch occurs in scattered localities throughout southern Ontario in habitats very similar to those of Tufted vetch.

**Tuberous vetchling,** *Lathyrus tuberosus* L., (Plate 24) [gesse tubéreuse, Earth-nut pea, Everlasting pea, Perennial pea, Vetchling, Wild pea] Perennial reproducing by many underground tubers (like small potatoes) and by seed. Stems 20 – 100 cm (8 – 40 in.) long, slender, hairless, wingless, much-branched, weak and usually sprawling in a tangled mass; in spring and summer usually coming directly from small, potato-like tubers which may be deep in the ground; leaves alternate (1 per node) but appearing opposite (2 per node) because they are compound, having 1 pair of stalkless, opposite leaflets and a slender, 3-branched tendril at the end; leafstalk (between the 2 leaflets and the stem) short, 8 – 20 mm (⅓ – ⅘ in.) long, slender, wingless, and with a pair of slender, pointed stipules about 1 cm (⅖ in.) long on either side where it joins the stem; each individual leaflet narrowly elliptic, 2 – 5 cm (⅘ – 2 in.) long, pointed at both ends; flowers pink to violet, resembling a Sweet pea in color, shape and fragrance, in groups of about 5 (2 to 10) on long, erect stalks from the leaf axils; seedpods light brown, about 2 cm (⅘ in.) long and usually containing 2 or 3 greenish to brownish seeds. Flowers from June to September.

Tuberous vetchling occurs in cultivated fields, pastures, meadows, orchards, old gardens, edges of woods and roadsides in scattered locations in southern Ontario. Before flowering, it is distinguished by its slender, nonwinged, weak stems with alternate, compound leaves having just 2 opposite leaflets plus 3-branched, thread-like tendril, and reproducing from numerous, small, potato-like tubers. **Everlasting pea,** *Lathyrus latifolius* L., (not illustrated) [gesse à feuilles larges], resembling Tuberous vetchling but is a larger, coarse plant with broadly winged stems, winged leafstalks and does not reproduce by tubers.

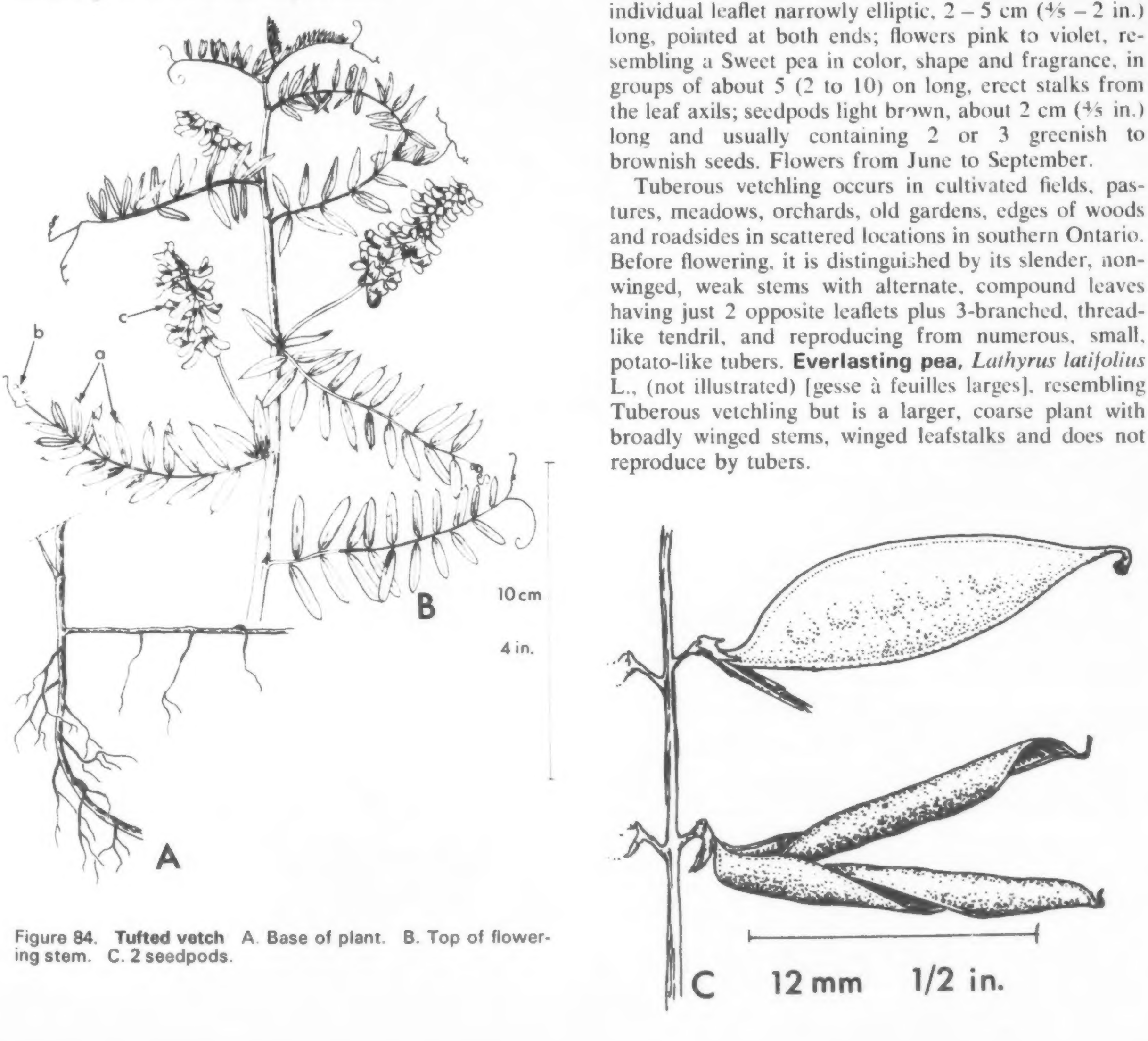


Figure 84. **Tufted vetch** A. Base of plant. B. Top of flowering stem. C. 2 seedpods.

# RUE FAMILY (Rutaceae)

**Prickly-ash,** *Xanthoxylum americanum* Mill., (Figure 85) [clavelier d'Amerique, *Zanthoxylum americanum* Mill.] Tall shrubs or small trees up to 8 m (26 ft) high; reproducing by seed and sprouting from spreading underground rhizomes, often forming dense impenetrable stands. Stems very prickly with pairs of stout, triangular prickles (a) at every node, the needle-sharp tip of each prickle pointing outwards or slightly upwards; leaves pinnately compound with 2 to 5 pairs of leaflets (b) and 1 terminal leaflet (c); leaflets narrowly to broadly ovate with a pointed tip, dark green above and light green below, very finely hairy on the underside when young but later becoming smooth, with very small translucent dots due to the presence of oil glands, these resembling pinpricks through the leaf when viewed against the light; flowers unisexual, in small umbel-like clusters (d) from the nodes of branches of the previous year and appearing in May before the leaves expand, male and female on different plants; petals 4 or 5, yellowish, very small, 1 – 2 mm (1/25 – 1/12 in.) long; sepals absent; stamens 4 or 5 and longer than the petals in male (pollen-producing) flowers; pistils 3 to 5 in female (seed-producing) flowers, forming small, stalked, spherical or elliptical pods about 5 mm (⅕ in.) across and splitting across the top to release 2 seeds. Flowers in May; seeds mature in August to September.

Prickly-ash occurs in the edges of woods and moist meadows in southern and southwestern Ontario. Because the foliage may be browsed when other forage is scarce and because it has been suspected of having poisoned cattle and sheep in Indiana, it should be viewed with suspicion when present in areas used for pasturing livestock. It is distinguished from wild and cultivated roses *(Rosa* spp.) [rosier] by clusters of small yellow flowers (d) on leafless branches in May, and by pairs of triangular prickles (a) at each node of the stem rather than irregularly scattered along the stem. Taller shrub and tree forms of Prickly-ash might be confused with **Black locust** (*Robinia* spp.) [robinier] or **Honey locust** (*Gleditsia* spp.) [févier] but can be distinguished by the same features of flowers and scattered prickles and by the once-compound leaves with 5 to 11 leaflets.

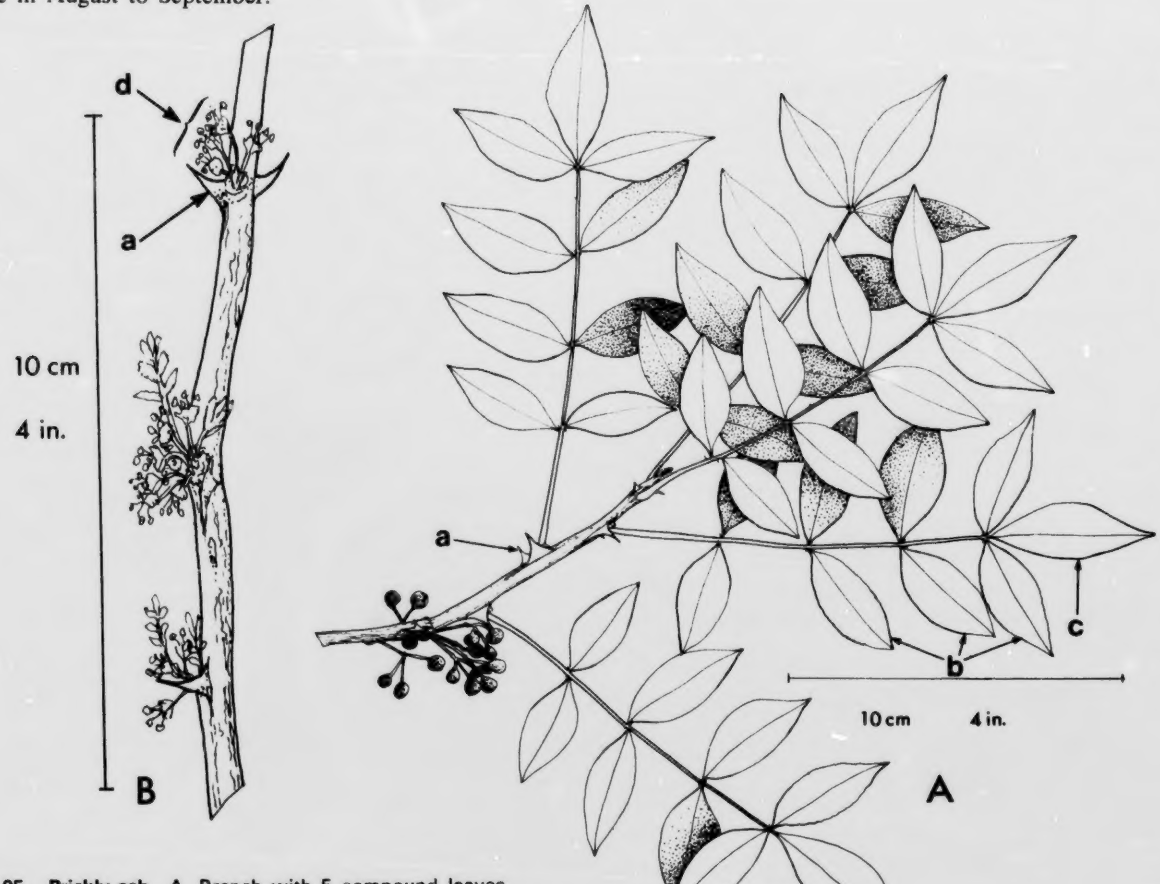


**Figure 85. Prickly-ash A. Branch with 5 compound leaves and young fruits. B. Flowering branch in spring.**

# SPURGE FAMILY (Euphorbiaceae)

**Spotted spurge,** *Euphorbia maculata* L., (Figure 86) [euphorbe maculée, Wartweed] Annual, reproducing only by seed. Stems mostly erect and bushy-branched throughout, or nearly prostrate, finely hairy when young, smooth and somewhat succulent when older, green or reddish; leaves opposite (2 per node), stalkless, oblong or lanceolate, usually somewhat uneven (a) at the base, dark green above and often with a red or reddish-purple blotch near the middle, lighter green and usually somewhat finely hairy on the undersurface, margins distinctly toothed; lower leaves often dropping early making the lower stem and lower parts of the branches nearly bare. Flowers complex, individually very small (b) without sepals or petals and unisexual but clustered together in structures called cyathia as in Leafy spurge (Figure 89B); each cyathium is a tiny cup about 2 – 4 mm (1/12 – ⅙ in.) across with 4 tiny wings at its margins and containing several single stamens and a single 3-lobed pistil with a 3-branched style and stigma; ovary maturing into a 3-lobed, hairless seedpod (c) about 2 – 2.5 mm (1/12 – 1/10 in.) long and containing 3 small seeds about 1.3 mm (1/20 in.) long with a few transverse wrinkles on the sides. The whole plant, including stem, roots, leaves and flowers, with the possible exception of mature seeds, contains a sticky, white milky juice which exudes freely from any cut or broken surface.

Spotted spurge is very common in the southwestern portion of southern Ontario, occurring in cultivated fields, gardens, waste areas and roadsides. It can also be found in the counties bordering the north shore of Lake Ontario.

Six other species of prostrate or nearly prostrate annual spurges also occur in Ontario. All are native plants which grow naturally in sandy or gravelly soils along lakes and streams, in sand dunes, and other open areas. However, because sometimes they may grow in cultivated fields, gardens, roadsides, railway ballast, and waste places, most of them are also considered to be weedy plants. All resemble Spotted spurge in branchiness, leaf shape, and having white milky juice, but they are mostly smaller and nearly prostrate. Distinctions among them are technical but include hairiness of stem and seedpod, size of seedpod, and features of the seed coat. Two of these are more common than the others.

**Hairy-stemmed spurge,** *Euphorbia vermiculata* Raf., (not illustrated) [euphorbe vermiculée], is probably the most common of these six in southern Ontario. It is prostrate to partly erect, much-branched, has scattered long hair on the stems; seedpods have no hair and are about 1.6 – 1.9 mm (1/16 – 1/13 in.) long.

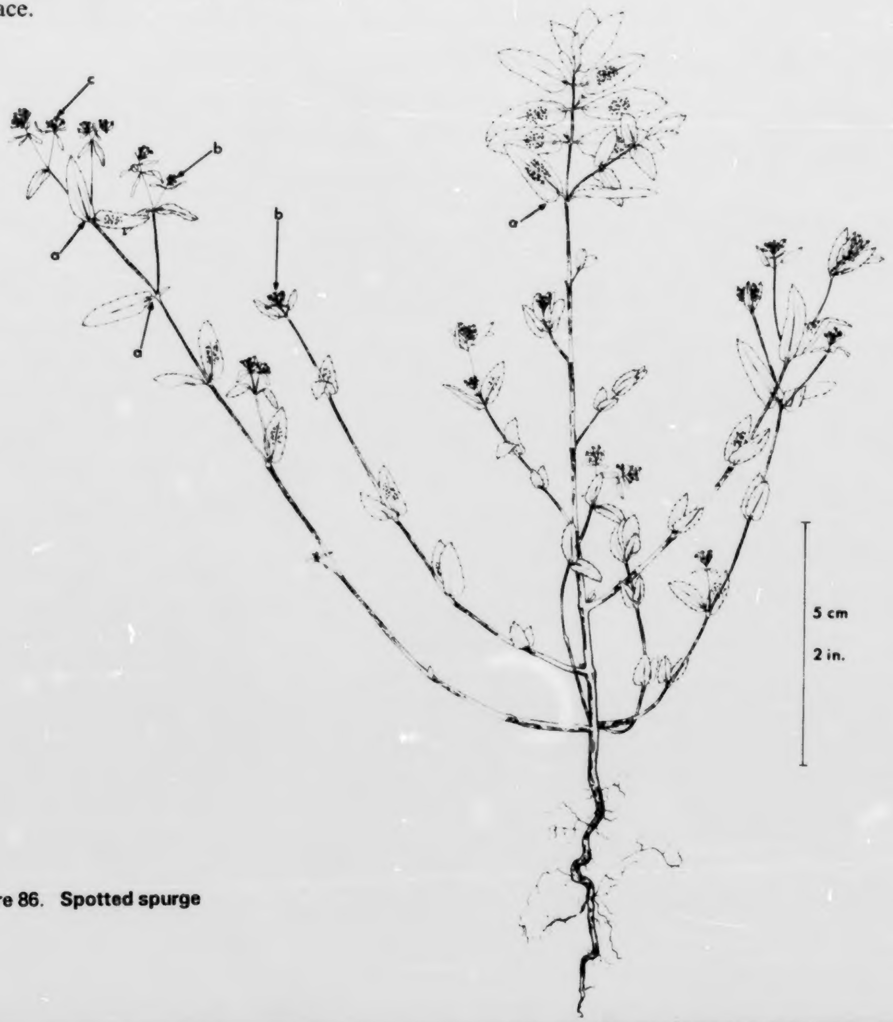


Figure 86. Spotted spurge

**Thyme-leaved spurge,** *Euphorbia serpyllifolia* Pers., (not illustrated) [euphorbe à feuille de serpolet, Ridge-seeded spurge, *Euphorbia glyptosperma* Engelm.], occurs throughout the southern and northwestern parts of Ontario. It is always prostrate; stems hairless; seedpods hairless and about 1.4 – 1.9 mm (1/18 – 1/15 in.) long.

**Petty spurge,** *Euphorbia peplus* L., (Figure 87) [euphorbe peplus] Annual, reproducing only by seed. Stems erect, 10 – 30 cm (4 – 12 in.), single or branched from the base; top of each main stem 3-branched (a) at base of inflorescence; lower and middle stem leaves (b) alternate (1 per node), oblong to rounded, 1 – 2 cm (⅖ – ⅘ in.) long, short-stalked; leaves at tip of stem (c) in 1 whorl of 3 leaves (d) from the same node; leaves opposite (2 per node) in the inflorescence (e); inflorescence beginning as a 3-branched umbel (a) and branching repeatedly in 2's (e), with a small flower cluster (f), in the axil of each pair of branches; flowers complex in cyathia or tiny cups (f), like those of Leafy spurge (Figure 89B); seedpods 3-lobed, containing 3 seeds; seeds about 1.5 mm (1/16 in.) long and about half as wide, somewhat 6-sided, the 2 inner faces with long, narrow depressions, the 4 outer surfaces with 2 to 4 circular depressions, gray to gray-brown. All parts contain a white milky juice which freely exudes when the plant is cut or broken. Flowering from early July until end of fall.

Petty spurge occurs throughout southern Ontario in gardens, waste areas, roadsides and occasionally in cultivated fields. It is distinguished from other erect-growing spurges by its annual habit; combination of alternate leaves (b) on main stem, whorl of 3 leaves (d) at tip of stem (c), and opposite leaves in inflorescence (e); main umbel of the inflorescence with only 3 branches (a) and its small, elongated, gray to brownish, 6-sided seeds with 2 elongated depressions and 4 rows of 2 to 4 rounded depressions. There is also a tendency for the stems to be somewhat succulent, and for the main branches of the inflorescence to be somewhat enlarged (g) above the nodes and tapering upwards to much thinner (h) just below the next higher nodes.

**Sun spurge,** *Euphorbia helioscopia* L., (not illustrated) [euphorbe réveille-matin, Wartweed], very similar to Petty spurge but differs from it by having a whorl of 5 leaves at the tip of the stem and 5 main branches to the inflorescence umbel and by having seeds which are egg-shaped to nearly spherical, 2 – 2.5 mm (1/12 – 1/10 in.) diameter, black and roughened by a network of prominent veinlike ridges over the entire surface. Sun spurge has nearly the same distribution in Ontario as Petty spurge and occupies similar habitats.

**Broad-leaved spurge,** *Euphorbia platyphylla* L., (not illustrated) [euphorbe à grandes feuilles], another erect annual spurge resembling Petty spurge. It is distinguished by having 5 branches in the main umbel (similar to Sun spurge in this respect) but its leaves are usually larger or longer and somewhat pointed, and its seeds are smooth, shiny, dark brown, egg-shaped and about 2 mm (1/12 in.) long. Broad-leaved spurge also occurs in southern Ontario in similar habitats as Sun spurge but is not as common.

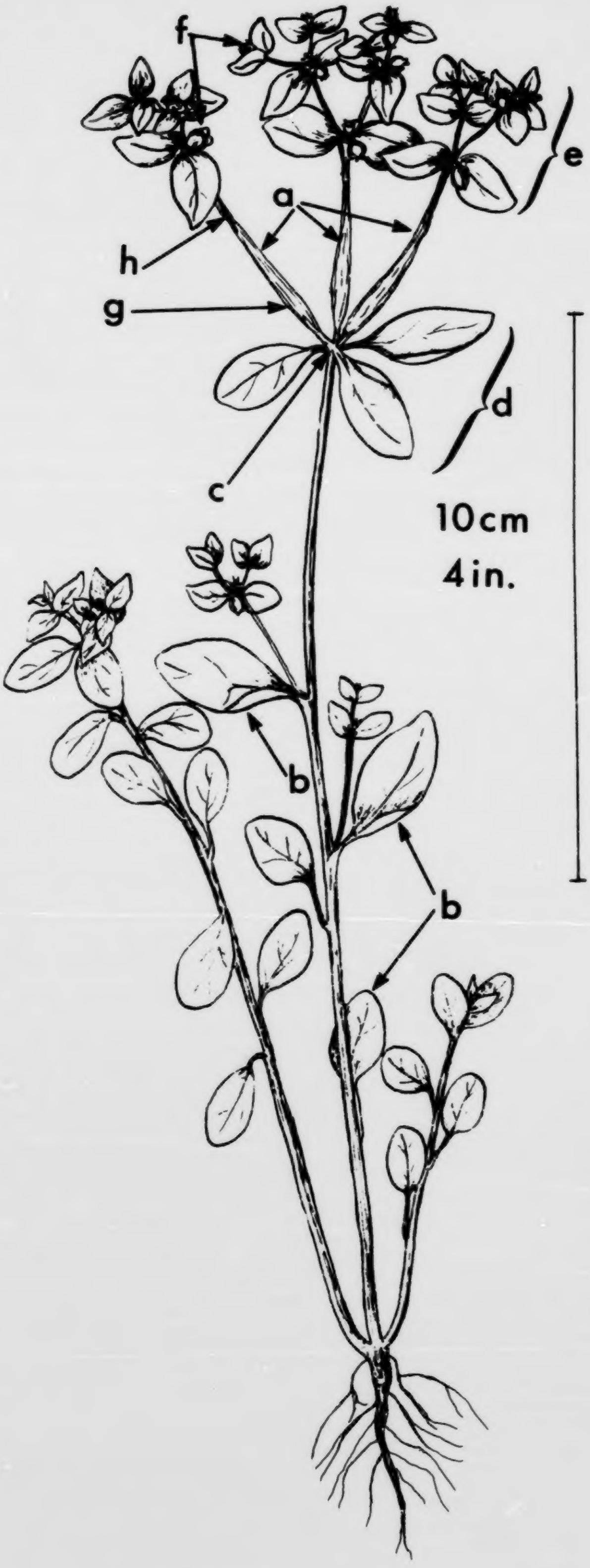


Figure 87. Petty spurge

**Cypress spurge,** *Euphorbia cyparissias* L., (Figure 88) [euphorbe cyprès, Graveyard spurge, Graveyard weed] Perennial, reproducing by seed and by underground roots forming dense stands. Stems erect, 10 – 80 cm (4 – 32 in.) high, usually much-branched above; leaves alternate (1 per node) (a), very numerous, small, narrow, linear or club-shaped; tip of stem at beginning of inflorescence (flowering branches) with a whorl of 10 or more shorter leaves (b); flowers greenish on a many-branched umbel (usually 10 or more main branches) at the tip of the main stem and on the upper branches; leaves (bracts) (c) of the inflorescence short and broad, heart-shaped, tapering towards the pointed tip, light yellowish-green or becoming reddish-green; flowers complex and similar to those of Petty spurge and Leafy spurge (Figure 89B), each flower cluster producing a 3-lobed seedpod containing 1 to 3 egg-shaped, smooth, grayish seeds 1.5 – 2 mm (1/16 – 1/12 in.) long. The whole plant contains an acrid sticky white juice. Flowering begins in late spring or early summer and may continue intermittently until late autumn.

Two kinds of Cypress spurge occur in Ontario, a sterile diploid form which does not produce viable seed, and a fertile tetraploid form which produces abundant fertile seed. The sterile form, reproducing only from underground parts was once commonly cultivated in gardens and cemeteries. It has persisted in many localities and occasionally spreads vegetatively to surrounding roadsides and waste places. This form occurs throughout Ontario. The fertile form which can reproduce by seed as well as by underground parts has become a rampant and troublesome weed in Dufferin County and in the Braeside area of eastern Renfrew County, occupying hundreds of acres of pasture, abandoned cultivated land, woodland, and roadsides. It is distinguished from the upright annual spurges (Petty, Sun and Broad-leaved) by its perennial habit, and from these and Leafy spurge by its slender stems with numerous, crowded, narrow leaves, its umbel with many slender branches, heart-shaped bracts or leaves tapering towards the tip in the inflorescence, and the production of densely leafy branches after early summer flowering.

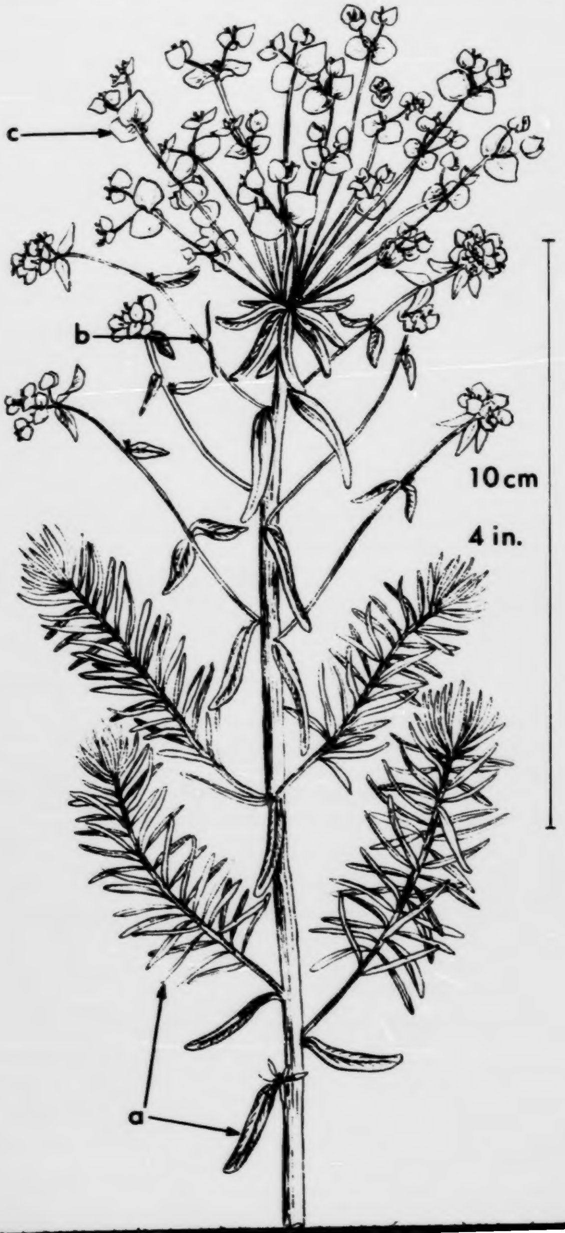


Figure 88. Cypress spurge

**Leafy spurge**, *Euphorbia esula* L., (Figure 89) [euphorbe ésule] Perennial, reproducing by seed and by widely spreading underground roots having numerous small pinkish buds from which new leafy shoots are produced. Similar to Cypress spurge but taller and coarser. Stems erect, up to 1 m (40 in.) high; leaves numerous, alternate (1 per node) (a), or crowded and some appearing opposite (2 per node) (b), 3 – 7 cm (1⅕ – 3 in.) long, linear or wedge-shaped, and 1 whorl of 7 or more leaves at the tip of the stem (c); flowers greenish, in a large umbel-like cluster of 7 or more branches at the tip of the main stem (c) and in smaller branching clusters at the ends of other branches (d); leaves (bracts) (e) of the inflorescence very broadly ovate to almost kidney-shaped and usually abruptly tipped with a very fine point; flowers tiny, unisexual, several male (pollen-producing) flowers (f) without sepals or petals and 1 female (seed-producing) flower (g) crowded in a complex structure called a cyathium (**B**); seedpods (h) 3-lobed, containing 3 seeds about 2.5 mm (1/10 in.) long, smooth, grayish to yellowish or brownish and usually with a tiny yellow bump near the base; the seedpods exploding when dry and throwing the seeds several metres in all directions. The plants are deep green to almost bluish-green during spring, changing to yellowish-green or olive-green at flowering time during June and July, and changing back to a dull green or sometimes reddish-green after flowering; then sometimes with a secondary period of flowering in late August or September, shedding seeds while still flowering.

Leafy spurge occurs in several localities throughout Ontario, occupying a wide variety of soils and habitats, including cultivated land, meadows, pastures, waste places, open woodland, roadsides, and gardens. It is distinguished from Cypress spurge by its taller, coarser habit, longer leaves, and fewer branches in the main umbel at the tip of the stem. It is distinguished from the annual erect spurges by its perennial habit, and tall, coarse stems with mostly linear leaves.

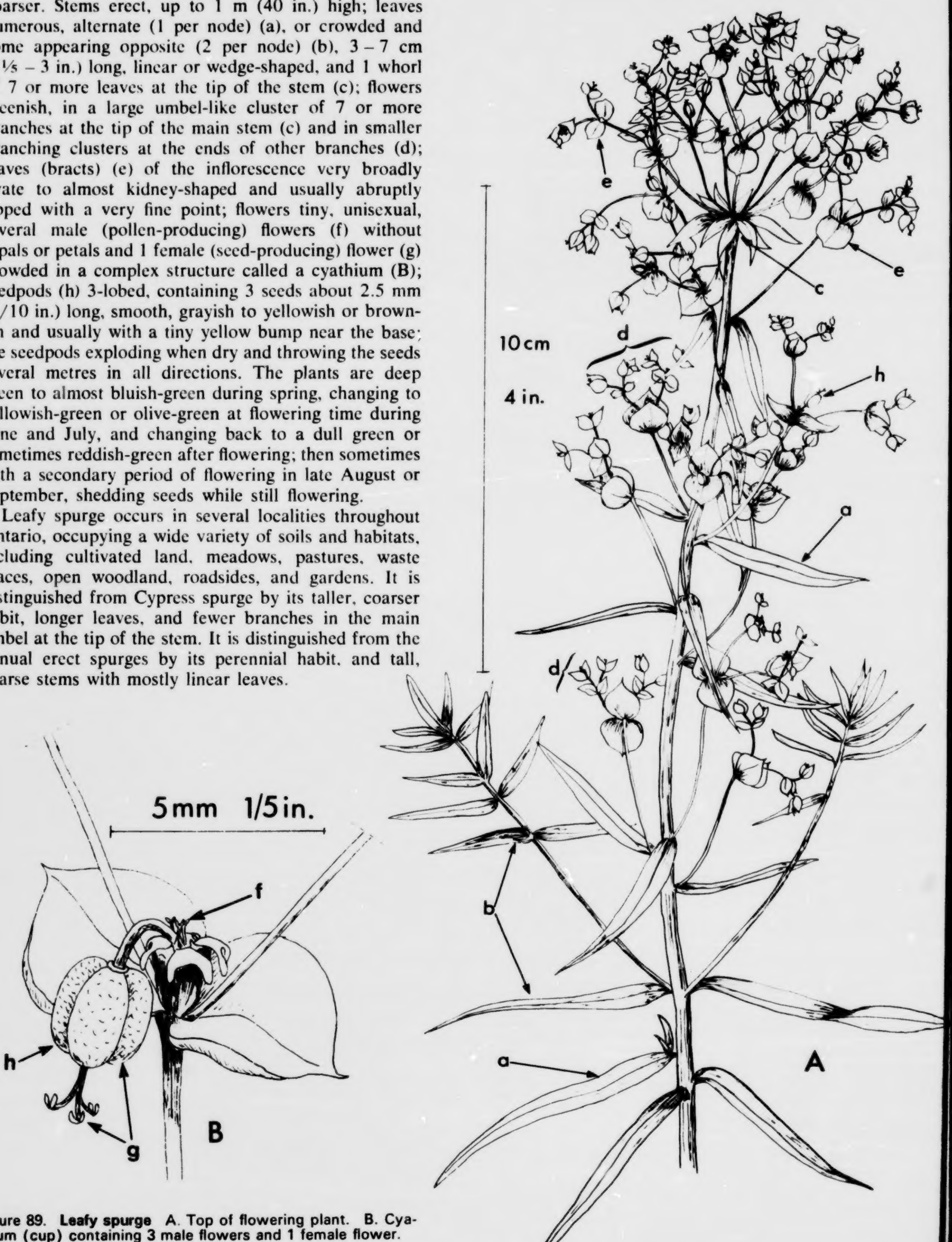


**Figure 89. Leafy spurge** A. Top of flowering plant. B. Cyathium (cup) containing 3 male flowers and 1 female flower.

# CASHEW FAMILY (Anacardiaceae)

**Poison-ivy**, *Rhus radicans* L., (Figure 90, Plate 33) [herbe à la puce; incorrectly called Poison-oak or *Rhus toxicodendron* L.] Perennial, spreading by seed and by woody rhizomes (underground stems) which produce dense colonies. Stems woody and of two kinds, the most frequent kind growing horizontally on or just below the ground surface with upright leafy stalks 10 – 80 cm (4 – 32 in.) high; the second kind is a climbing vine which develops aerial roots and may climb 6 – 10 m (20 – 33 ft) high on trees, posts, etc; leaves alternate (1 per node) (a), compound (b), each compound leaf consisting of 3 leaflets (c) at the tip of a long leafstalk (d); the middle leaflet has a longer stalk (e) than the 2 side leaflets (f); overall leaflet shape and type of toothing highly variable between leaflets on the same stem, as well as among plants within a patch and between patches; leaflets ranging from narrow to broadly ovate with a smooth margin (A, C), to a few scattered, shallow, rounded teeth (D), to several, coarse, deep-pointed teeth which give the leaflet a lobed appearance (E); leaves purplish to reddish when unfolding in spring (May to early June), bright green and often shiny (with a varnished appearance) in summer and turning a vivid orange-red to wine-red in autumn in sunny areas, but often lacking the bright color in shaded places; leaves smooth and hairless on both surfaces except for small tufts of brownish hair on the underside of the leaflet along the midvein and in the angles formed by the midvein and some of the lower branching veins; flowers small, white or greenish, with 5 sepals and 5 petals (g), in branching clusters from the leaf axils (angles between leafstalk and stem); flower clusters inconspicuous because they are often hidden below the dense leaf canopy and because many plants do not flower every year; each flower in the cluster followed by a whitish to dull greenish-yellow, dry, berrylike fruit (h) about 5 mm (⅕ in.) diameter with lengthwise ridges and somewhat resembling a peeled orange. Flowers in June and July, berries produced by September but often remaining on the low leafless stems all winter.

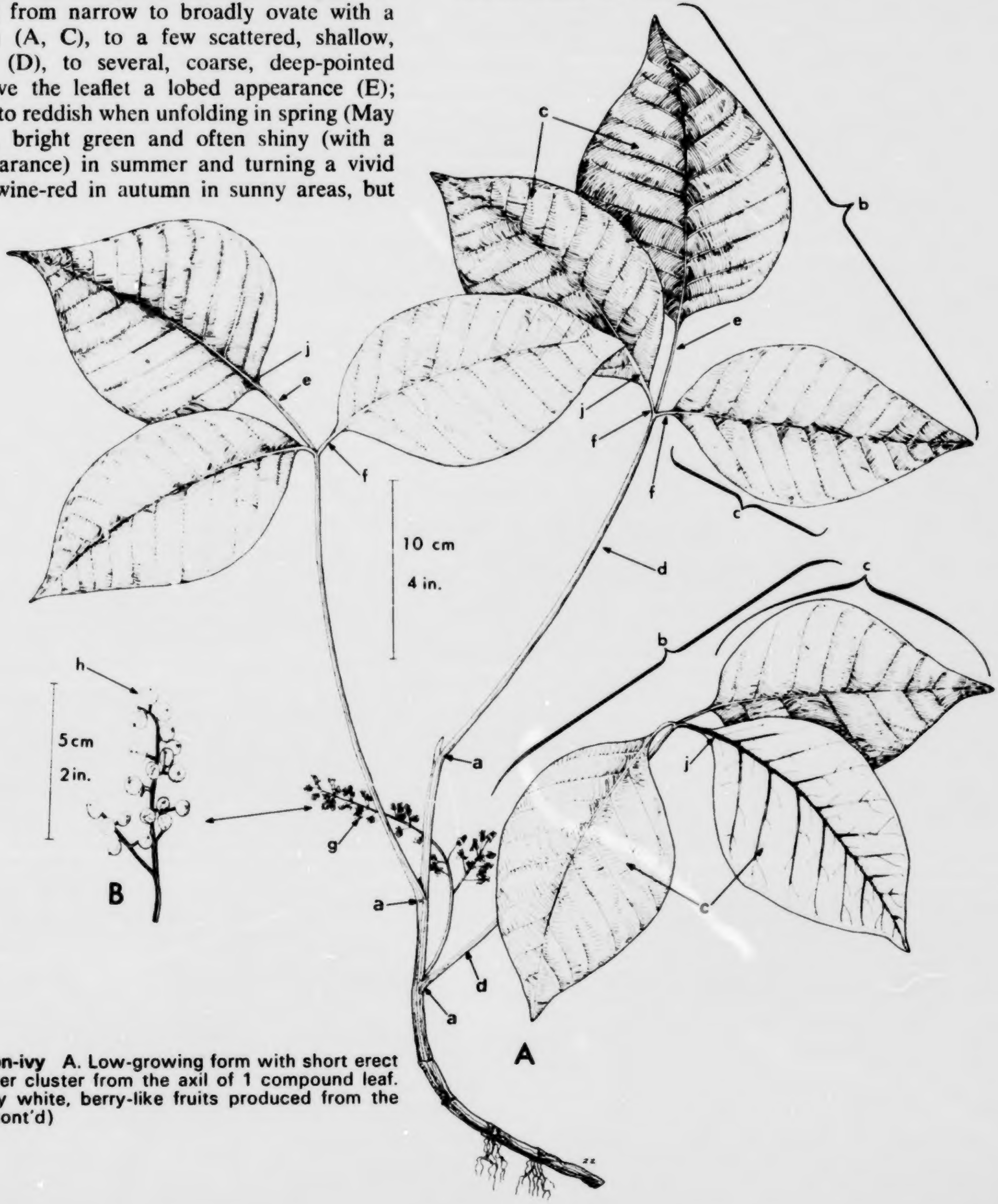


Figure 90. **Poison-ivy** A. Low-growing form with short erect stem and a flower cluster from the axil of 1 compound leaf. B. Cluster of dry white, berry-like fruits produced from the flower cluster (cont'd)

Poison-ivy occurs under forests, in edges of woodland, meadows, waste areas, fence lines, and roadsides throughout most of Ontario south of a line from North Bay to Kenora. The tall climbing vine form, however, occurs only in or close to the counties bordering Lake Erie, Lake Ontario and the lower Ottawa Valley.

All parts of the Poison-ivy including the roots contain a poisonous substance which causes an irritating inflammation of the skin of most people, the inflamed areas frequently developing blisters and accompanied by intense itchiness. The poisonous substance is an oily resin contained in the juice of the plant. Contact with any broken part of the plant, with leaves which have been chewed by insects, or with shoes, clothing, implements, or pets which have touched broken parts of the plant may cause a person with a sensitive skin to react. Dry twigs in winter or dug-up roots in summer can often cause a reaction. Burning Poison-ivy leaves and stems releases the poison in the form of tiny droplets on particles of ash and dust in the smoke, and can cause a severe reaction on exposed skin and in the breathing passages if a sensitive person breathes or passes through the smoke of such a fire. In cases of suspected contact with the plant, washing the skin and clothing with a strong soap may not prevent a reaction but it will help minimize reinfection to other parts of the body or to other individuals. If a reaction does develop, one should seek the advice of a physician for proper treatment. Poison-ivy is designated as a noxious weed by the Province of Ontario, and it is the duty of every person in possession of infested land to destroy noxious weeds thereon. For more information, see Ontario Ministry of Agriculture and Food Publication 243, *Poison-ivy*.

Poison-ivy is sometimes mistakenly called **Poison-oak** because some plants have very coarsely toothed or lobed leaflets. The true Poison-oak occurs in southern United States, but not in Canada. Poison-ivy can be distinguished by its low growth, 3 leaflets (c) in each compound leaf (b), leaves deep green in summer, reddish in spring and fall, its clusters of whitish to greenish-yellow berries (h), and its short, erect, leafless stems which frequently retain a few berries all winter long.

**Virginia creeper**, *Parthenocissus* spp., (not illustrated) [vigne vierge], a climbing vine with compound leaves, occasionally has some leaves with only 3 leaflets, but usually there are 5, and its fruits are soft and bluish. **Manitoba maple**, *Acer negundo* L., (not illustrated), may have 3 leaflets instead of the usual 5, but its compound leaves are arranged in opposite pairs (2 per node) on the stems and the seeds are long and winged. **Hog-peanut**, *Amphicarpa bracteata* (L.) Fern., (not illustrated), normally has 3 leaflets like Poison-ivy, but it is a twining herbaceous vine (not woody), its purplish to whitish flowers are pealike and larger than those of Poison-ivy, and each of the 3 leaflets in 1 compound leaf of Hog-peanut has 3 strong veins (the midrib plus 1 big vein on each side) joining the leaflet stalk (e, f), whereas Poison-ivy has only 1, the midrib (j).

**Poison sumac**, *Rhus vernix* L., (not illustrated) [sumac à vernis], is a tall shrub (1.5 – 5 m, 5 – 17 ft high) which causes the same kind of irritating inflammation as does Poison-ivy. It normally grows in wet areas from Hamilton to London and southwards; leaves alternate (1 per node), but each leaf is compound with 3 to 6 pairs of leaflets plus 1 terminal leaflet; its clusters of flowers are white and the berries grayish-white. **Staghorn sumac**, *Rhus typhina* L., (not illustrated) [sumac vinaigrier], which is not poisonous usually grows on drier land, has bright red fruits and sharply toothed leaflets. Young trees of **Ash**, *Fraxinus* spp., (not illustrated) [frêne], have compound leaves similar to the sumacs but their leaves are opposite (2 per node), and are not poisonous.

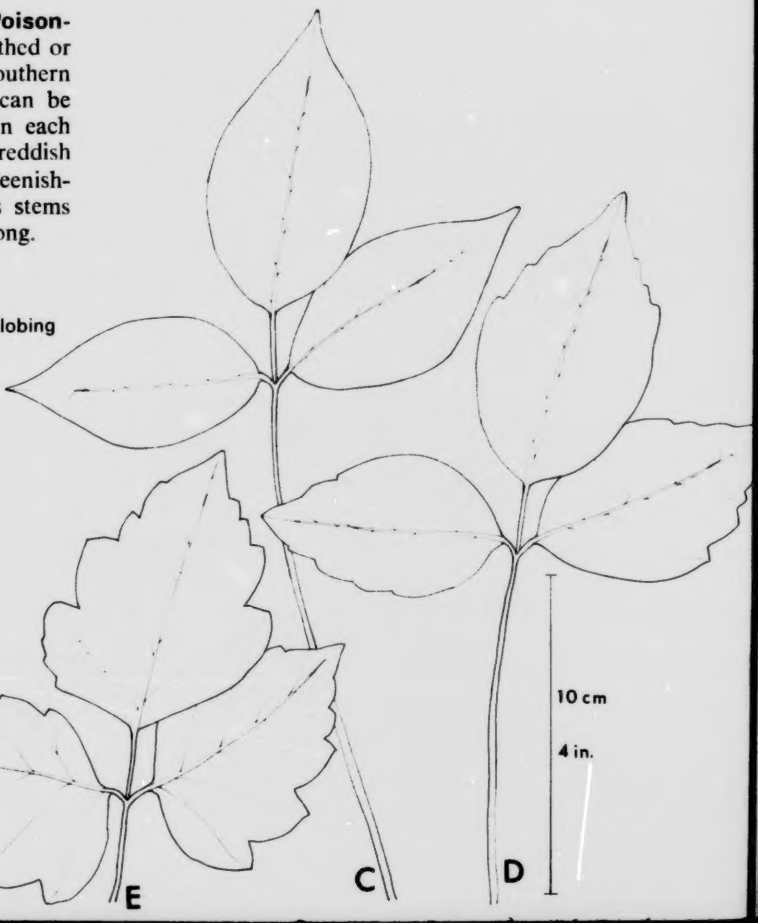


Figure 90. **Poison-ivy** C.–E. Variation in margin and lobing of leaflets.

# BUCKTHORN FAMILY (Rhamnaceae)

**European buckthorn,** *Rhamnus cathartica* L., (Figure 91, Plate 49) [nerprun commun, Common buckthorn] Perennial, reproducing only by seed. Grows as a bushy small tree or several-stemmed shrub up to 6 m (20 ft) high. Most branches older than one year are tipped with a short, sharp thorn (a), (hence "thorn" in its English name); this thorn often present in the fork of 2 branches (b); leaves usually opposite (2 per node) (c), but sometimes alternate (1 per node) (d), elliptic or oblong usually with fine rounded teeth but sometimes nearly smooth, dark green above and lighter green or yellowish-green below; usually 3 main branching veins (sometimes 2 or 4) on each side of the midrib and strongly curving or arching forward (e) towards the tip of the leaf (Plate 49); flowers small, with 4 sepals and 4 petals, greenish to yellowish, short-stalked, in small clusters from the axils of leaves or on short twigs along the stem; each flower unisexual with either 4 stamens or 1 pistil but not both, and the sexes usually on different plants; berries (f) round, 5 – 6 mm (⅕ – ¼ in.) diameter, purplish-black and very juicy with 4 very hard seeds (stones). Flowers during May and June but the berries, and often the dry leaves, persist on the tree long into winter.

European buckthorn was introduced as an ornamental shrub, but its seeds have been widely scattered by birds and other animals so it is common in fence lines, woodland, pastures, and abandoned barnyards throughout southern Ontario. Because European buckthorn is an alternate host for the fungus which causes leaf and crown rust of oats, it must be destroyed to minimize this disease on oats. It is distinguished by the sharp, thorn-tipped branches (a, b), the prominent forward-curved side veins (e, Plate 49) of the leaves, the clusters of purplish-black berries (f) along the stems and short twigs, and each berry usually with 4 hard seeds. These juicy berries are very bitter and cathartic.

**Alder buckthorn,** *Rhamnus frangula* L., (not illustrated) [nerprun bourdaine, Glossy buckthorn], resembling European buckthorn but its branches lack the thorny tips; its leaf margins are smooth or rarely slightly toothed; the side veins of the leaf are more numerous and do not curve towards the tip of the leaf; flowers have 5 sepals and 5 petals and the reddish to black berry has only 2 or 3 hard seeds. Alder buckthorn was also introduced as an ornamental shrub and has spread from cultivation to moist meadows and wet areas, but it is not an important alternate host for leaf or crown rust of oats.

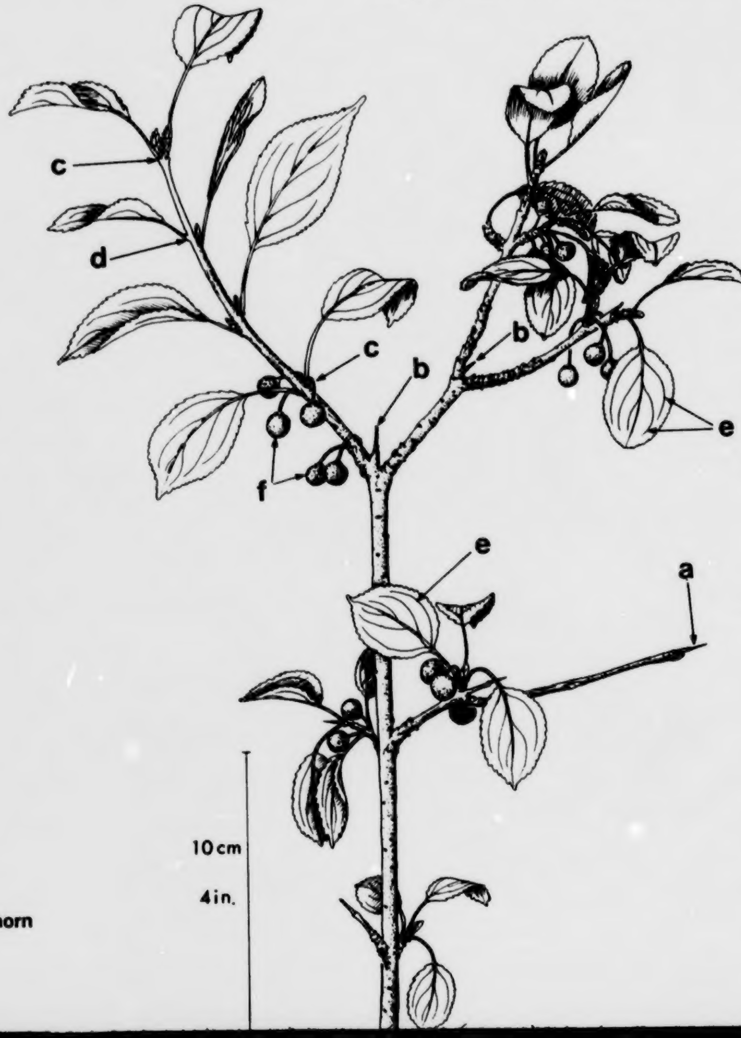


Figure 91. European buckthorn

# MALLOW FAMILY (Malvaceae)

**Musk mallow,** *Malva moschata* L., (Figure 92) [mauve musquée] Perennial, reproducing only by seed. Stems erect, 40 – 100 cm (16 – 40 in.) high, rough-hairy; leaves in basal tufts or rosettes and alternate (1 per node) on erect stems; rosette leaves long-stalked, shallowly lobed and with rounded teeth (A) but never deeply dissected or divided; stem leaves long-stalked to short-stalked or stalkless near the top (B), deeply cut or divided into 5 to 7 major segments (a), each segment (a) with numerous, irregular, rounded or sharp teeth (b); flowers in clusters near the ends of the stem and upper branches, and on long stalks from the upper leaves; sepals forming a 5-lobed cup (c) about 1 cm (⅖ in.) across; petals 5, united near their bases, white to rosy or pale purple, each one triangular (d) or somewhat heart-shaped, about 2.5 cm (1 in.) long so the flower is about 5 cm (2 in.) across; the filaments of the many stamens united into a thin erect column (e) around the several styles and standing like a small peg about 10 mm (⅖ in.) high in the middle of the flower (C); fruit a circle of slightly fused dry sections ("seeds") around a common center (resembling Figure 93D), and usually enclosed by the persistent sepals after the petals fall. Flowers from late June until autumn.

Musk mallow, once widely cultivated as an ornamental in perennial flower gardens, has escaped to roadsides, fields and waste places throughout most of southern Ontario. It is distinguished by its erect habit, its simple basal leaves (A) and deeply divided stem leaves (B), its large 5-petaled flowers with many stamens united into a column (e) in the center of the flower (C), and its dry fruits arranged in a circle.

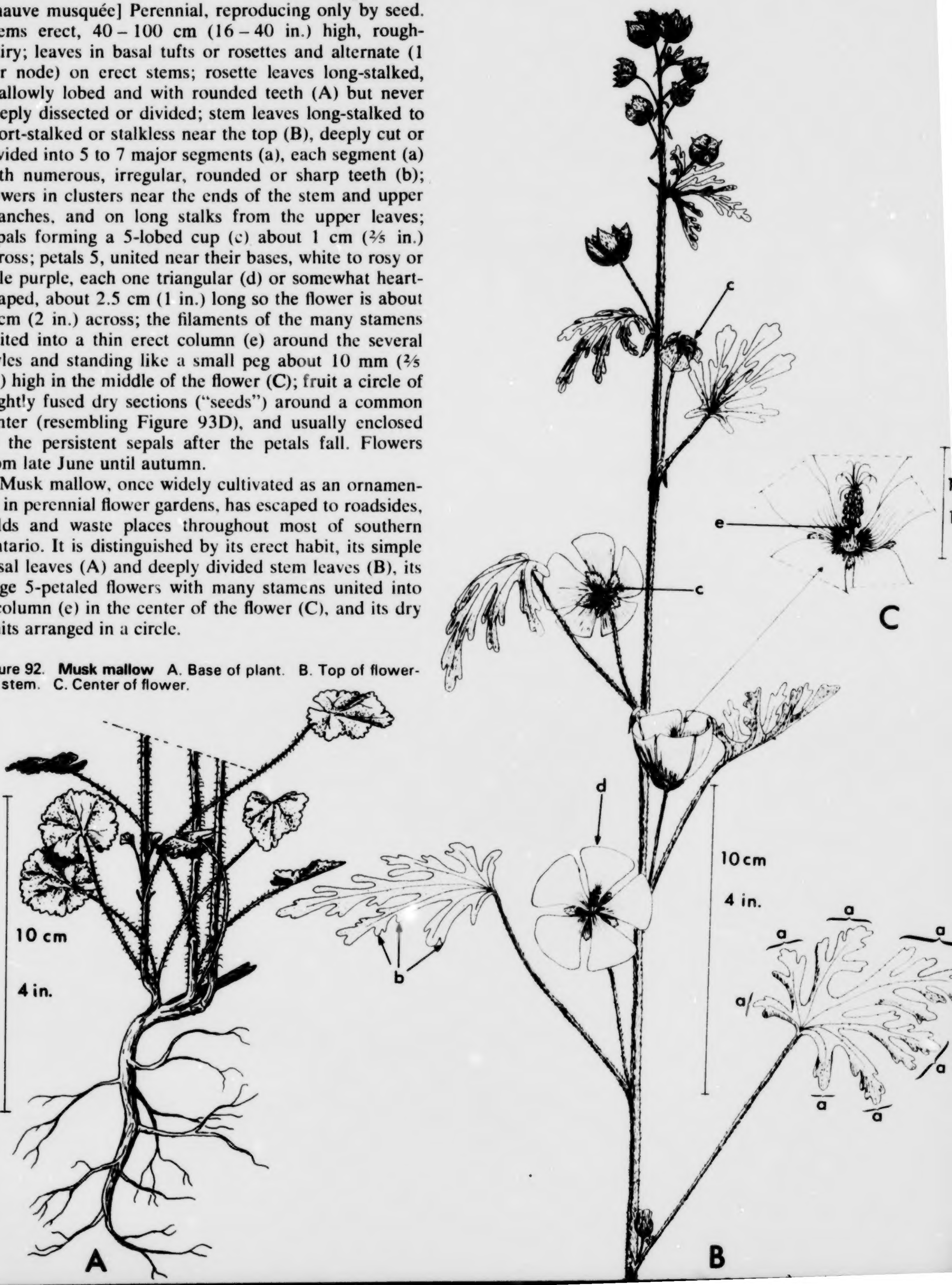


Figure 92. **Musk mallow** A. Base of plant. B. Top of flowering stem. C. Center of flower.

**Common mallow**, *Malva neglecta* Wallr., (Figure 93A-D, Plate 14) [mauve négligée, Cheeses, Garden mallow, Round-leaved mallow] Annual, biennial or short-lived perennial, reproducing only by seed. Stems much-branched, erect or trailing on the ground with upturned ends, hairy, 10 – 60 cm (4 – 24 in.) long, from a stout taproot; leaves alternate (1 per node), long-stalked, blades rounded or kidney-shaped with a deep heart-shaped base, shallowly lobed (a) and toothed (b); flowers in axils of leaves; sepals in a ring; petals 5, white to pinkish or lilac, 1 – 1.5 cm (⅖ – ⅗ in.) across and with a column of stamens in the center covering the pistil (as (e) in Figure 92C); fruit a circle of about 12 to 14 dry sections ("seeds"), each section having flat sides but being round on its back (c), very finely hairy, and containing 1 dark brown seed. Flowers from June to late autumn.

Common mallow occurs throughout most of Ontario and is a very frequent weed in lawns, gardens, barnyards, roadsides, waste places and occasionally in cultivated fields.

**Round-leaved mallow**, *Malva pusilla* Sm., (Figure 93E) [mauve à feuilles rondes, Cheeses, Garden mallow, *Malva rotundifolia* L.], very similar in habit and general appearance to Common mallow but differs by having smaller flowers with petals only about 6 mm (¼ in.) long, and the back of each "seed" section flat rather than round and covered with a network of fine ridges and depressions. It also flowers at about the same time as Common mallow and occurs throughout most of Ontario in similar habitats but is not as abundant.

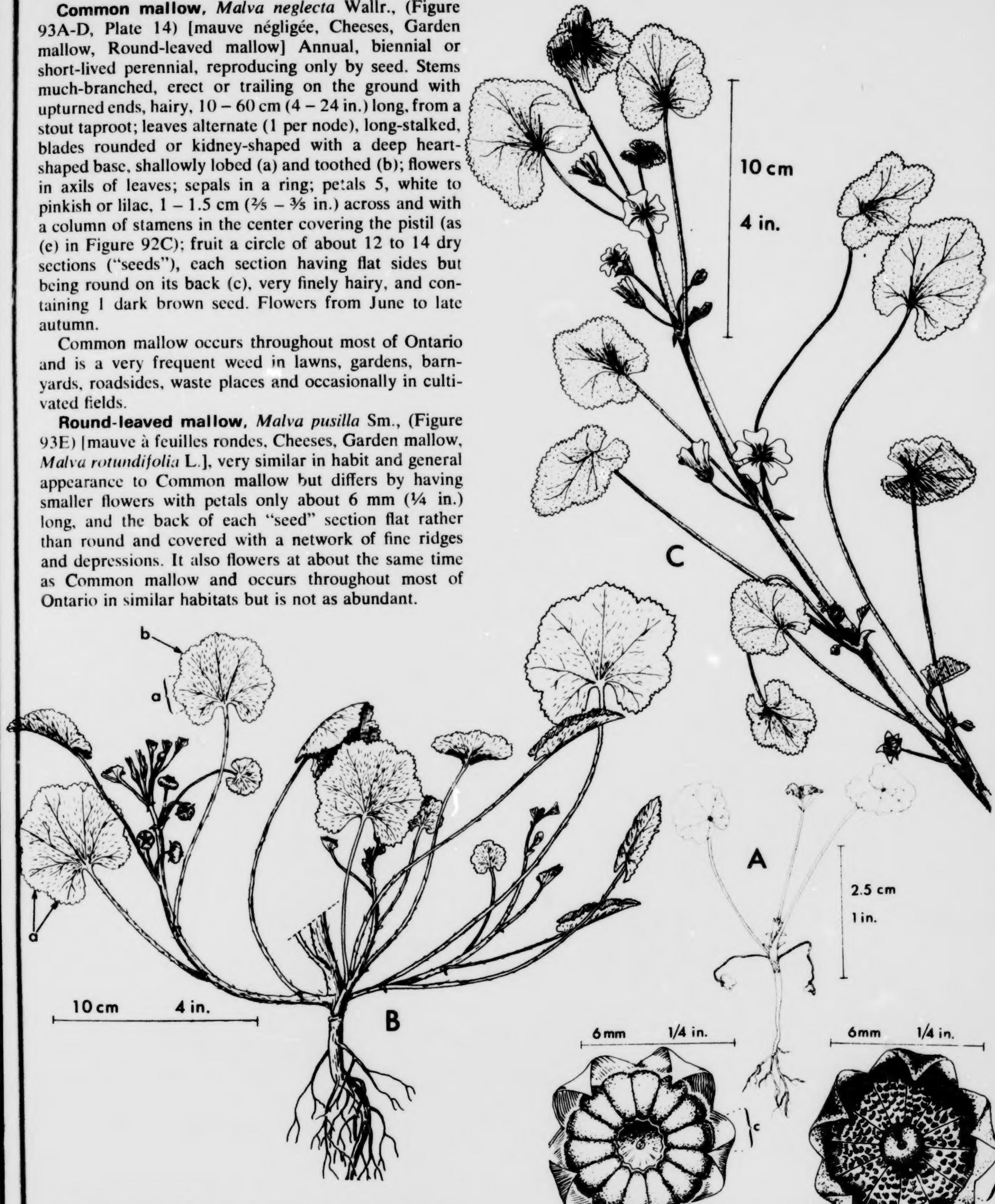


Figure 93. **Common mallow** A. Seedling. B. Base of mature plant. C. End of flowering stem. D. Fruit (ring of "seeds"). **Round-leaved mallow** E. Fruit (ring of "seeds").

**Velvetleaf**, *Abutilon theophrasti* Medic., (Figure 94) [abutilon, Butter-print, Elephant-ear, Indian-mallow, Pie-marker] Annual, reproducing only by seed. Stems 1 – 2 m (3 – 6½ ft) tall and occasionally taller, much-branched in the upper part, finely soft-hairy; leaves alternate (1 per node), broadly heart-shaped, large, 7 – 20 cm (3 – 8 in.) wide with a sharp-pointed apex, shallowly round-toothed, soft-hairy and very velvety to the touch; flowers single or in small clusters from the leaf axils, each with 5 large sepals and 5 yellow to yellow-orange petals, 1.3 – 2.5 cm (½ – 1 in.) wide when open; the filaments united to form a central column as in the mallows (as (e) in Figure 92C); the fruit from each flower is a circular cluster of 12 to 15 seedpods about 1.3 – 2.5 cm (½ – 1 in.) long (B), each individual pod (a) opening with a vertical slit down its back and containing several purplish-brown, V-shaped seeds about 1 mm (1/25 in.) thick and 2 – 3 mm (1/12 – ⅛ in.) long. Flowers from late July until autumn.

Velvetleaf occurs only in the southwestern part of southern Ontario where it is increasing in corn, soybeans and other annually tilled crops and in waste places. It is distinguished by its erect habit of growth, large, alternate, valentine-shaped leaves which are very soft-velvety to the touch, yellow to yellow-orange flowers with central column of stamens, ring of several seedpods (B) produced from each flower, and in late autumn by the rather grotesque appearance of its erect, branched, brownish to blackish stem with many erect clusters of seedpods.

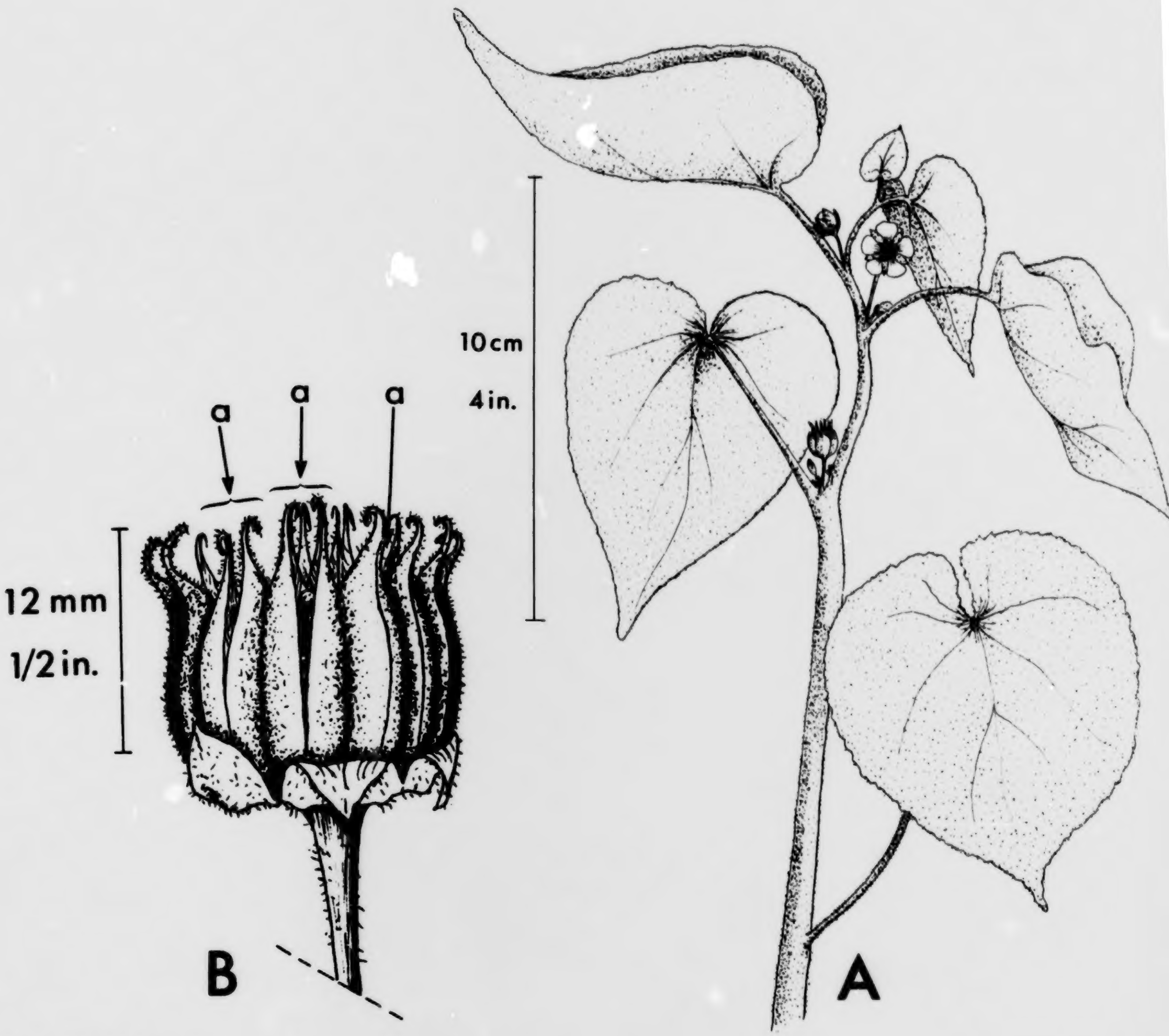


**Figure 94. Velvetleaf** A. Upper part of flowering stem. B. Cluster of seedpods.

**Flower-of-an-hour**, *Hibiscus trionum* L., (Figure 95) [ketmie trilobée] Annual, reproducing only by seed. Stems at first erect but soon much-branched and spreading, 30 – 50 cm (12 – 20 in.) high, rough-hairy; leaves alternate (1 per node), leafstalks about as long as the blades, leaf blades deeply 3-parted with each division coarsely lobed; flowers 2 – 4 cm (¾ – 1½ in.) diameter with a ring of several linear bracts (a) below the calyx; calyx of 5 papery-thin united sepals (b), coarsely hairy on the prominent, purplish, lengthwise veins; petals yellowish with a dark or purplish-brown center or eye; filaments united into a central column as in the mallows (as (e) in Figure 92C); seedpod globular, opening at the top, with many purplish-brown, V-shaped seeds about 2 mm (1/12 in.) long. Flowers from July to late autumn.

Flower-of-an-hour occurs only in the southwestern part of southern Ontario where it is a frequent weed in row crops, open fields and waste places. It is distinguished by its low branching habit, bluish-green leaves which are deeply 3-parted and coarsely toothed, yellow flowers with a purplish-brown eye spot, a cluster of linear bracts (a) immediately below the calyx, and the purple-veined papery calyx (b) enclosing the globular seedpod.

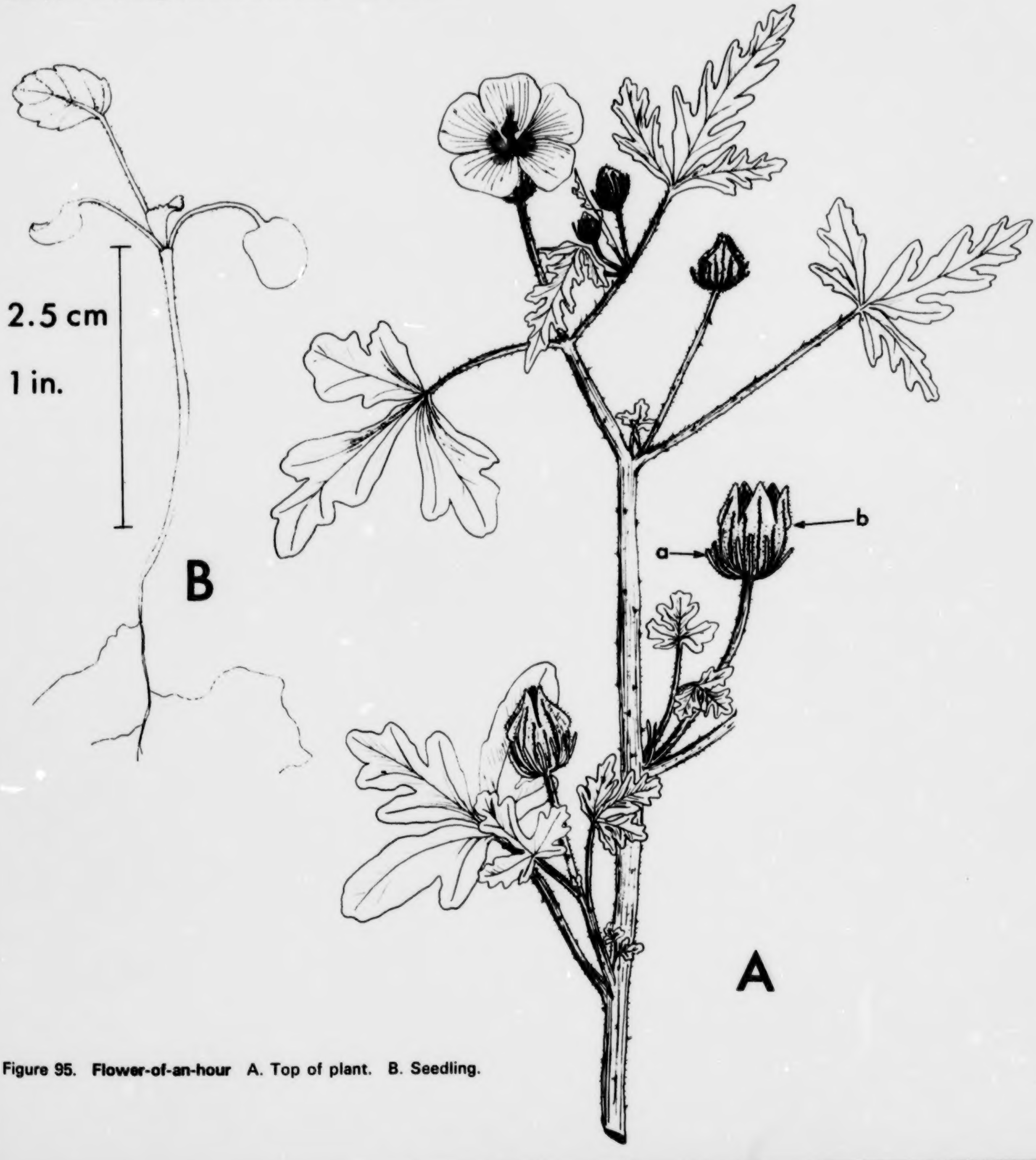


Figure 95. Flower-of-an-hour A. Top of plant. B. Seedling.

# ST. JOHN'S-WORT FAMILY (Hypericaceae)

**St. John's-wort**, *Hypericum perforatum* L., (Figure 96, Plates 25, 26) [millepertuis perforé, Goatweed, Klamathweed] Perennial, reproducing by seed and by spreading underground roots or rhizomes. Stems of 2 kinds, upright flowering stems 40 – 80 cm (16 – 32 in.) high, tough or woody near the base, branching and smooth except for shallow ridges below the base of each leaf; and horizontal basal branches, these produced in late fall or early spring, short, densely leafy, and radiating out from the basal crown of each plant; leaves opposite (2 per node), stalkless, elliptic or linear, smooth-margined and, when viewed against the light, appear to have many small perforations or transparent dots (B, Plate 26); flowers numerous in clusters at ends of branches, each about 2 cm (⅘ in.) across, with 5 yellow petals having several, small, black dots along the margins, many stamens in 3 clusters and a single pistil in the center; seedpods splitting from the tip; seeds dark brown about 1 mm (1/25 in.) long. Flowers from June to August; seedpods frequently persisting all winter.

St. John's-wort occurs throughout Ontario in pastures, edges of woodlots, roadsides, abandoned fields, waste areas and occasionally in lawns and flower borders. It is distinguished by its almost woody base, opposite leaves, bright yellow flowers, and leaves with transparent dots (B, Plate 26). If eaten by livestock, St. John's-wort may cause photosensitization, a condition in which patches of white or light-colored skin become seriously sunburned under normal exposure to sunlight. Avoid pasturing animals where this weed is abundant or keep them under shade during normal sunny days.

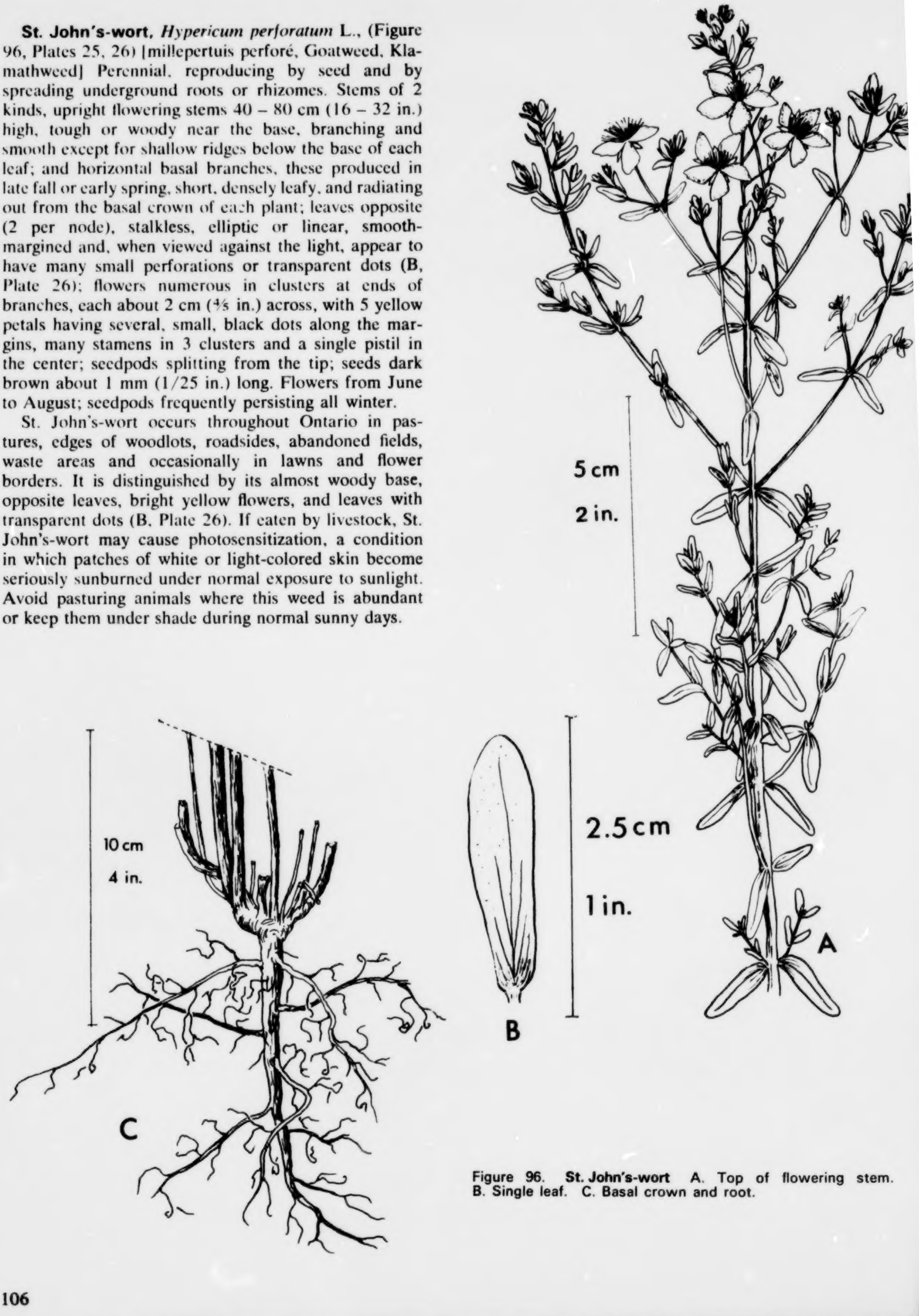


Figure 96. **St. John's-wort** A. Top of flowering stem. B. Single leaf. C. Basal crown and root.

# VIOLET FAMILY (Violaceae)

**Field violet,** *Viola arvensis* Murr., (Figure 97) [violette des champs, European field pansy, Field pansy, Wild pansy] Annual or possibly living for two years, reproducing only by seed. Stems erect and short or much-branched and somewhat spreading, up to 30 cm (12 in.) long, somewhat fleshy or succulent, with or without fine hair; leaves of seedlings and young plants very small, with long stalks (a), rounded blades, a few shallow teeth, and very small stipules; stem leaves of older plants alternate (1 per node), larger, oval to oblong or nearly linear, all with a few coarse rounded teeth; stipules (appendages at junction of leafstalk and stem) of stem leaves large, resembling leaf blades, deeply dissected with a long, thin, terminal lobe (b) and several, narrow, shorter segments on either side (c); flowers (d) on long thin stalks (e) from axils of leaves, pale yellow or white and yellow, resembling those of the cultivated pansy but much smaller, about 1 – 1.5 cm (⅖ – ⅗ in.) long, and with a very short spur (2 mm, 1/12 in.) at the base of the lower petal; seedpods splitting into 3 divisions and scattering numerous, small, brownish seeds. Flowers from early May to midsummer and occasionally in autumn.

Field violet occurs throughout most of Ontario in gardens, cereal crops, pastures, abandoned fields and waste places. It is distinguished by the small yellow flowers (d) resembling a miniature pansy, the lowest leaves rounded with very small stipules but upper leaves oblong and with large, prominent, deeply dissected stipules (b, c) so that the stem appears to have tufts of tiny narrow leaves at each node.

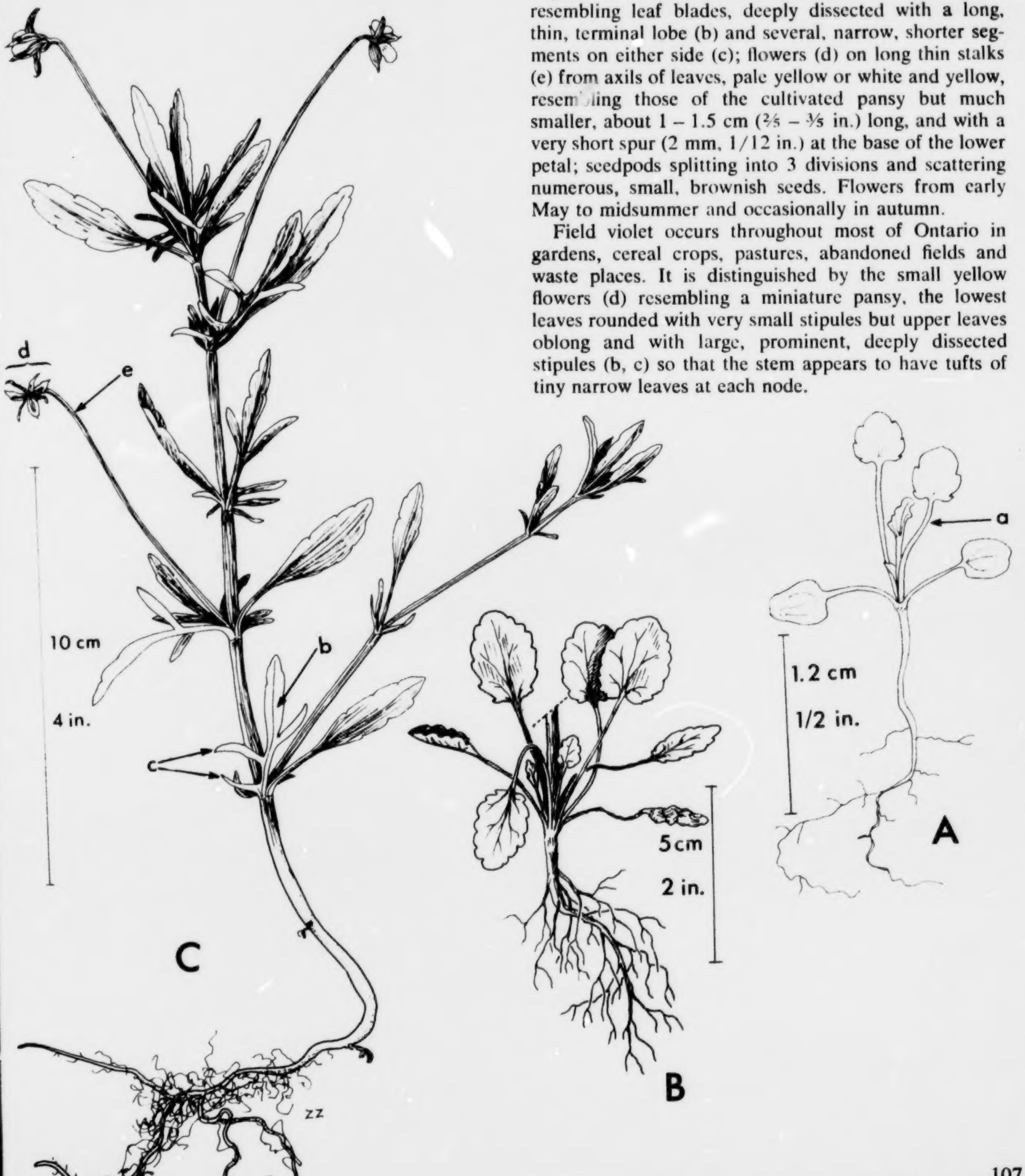


Figure 97. **Field violet** A. Seedling. B. Base of young plant. C. Flowering plant.

## LOOSESTRIFE FAMILY (Lythraceae)

**Purple loosestrife**, *Lythrum salicaria* L., (Figure 98) [salicaire, Spiked loosestrife] Perennial, reproducing only by seed. Stems tall, erect, 60 – 120 cm (24 – 48 in.) high, somewhat branched, usually finely hairy; leaves opposite (2 per node) or sometimes whorled (3 or more per node), stalkless, broad near the base and tapering towards the tip, 3 – 10 cm (1 – 4 in.) long, finely hairy; upper leaves and those in the inflorescence usually alternate (1 per node) and smaller than the lower ones; flowers in dense terminal spikes; sepals united into a column with 8 to 10 or 12 prominent green veins and ending in several, long, thin, pointed lobes; petals 5 to 7, red-purple, 7 – 10 mm (¼ – ⅖ in.) long, very showy; stamens several and 1 pistil; seedpod small containing many tiny seeds. Flowers from June to autumn.

Purple loosestrife was introduced from Europe but is now widely naturalized in wet meadows, river flood-plains, and damp roadsides throughout most of Ontario. Its opposite leaves and square stems resemble plants of the Mint Family but it is distinguished by having separate petals, a seedpod with many fine seeds, and it lacks the minty odor.

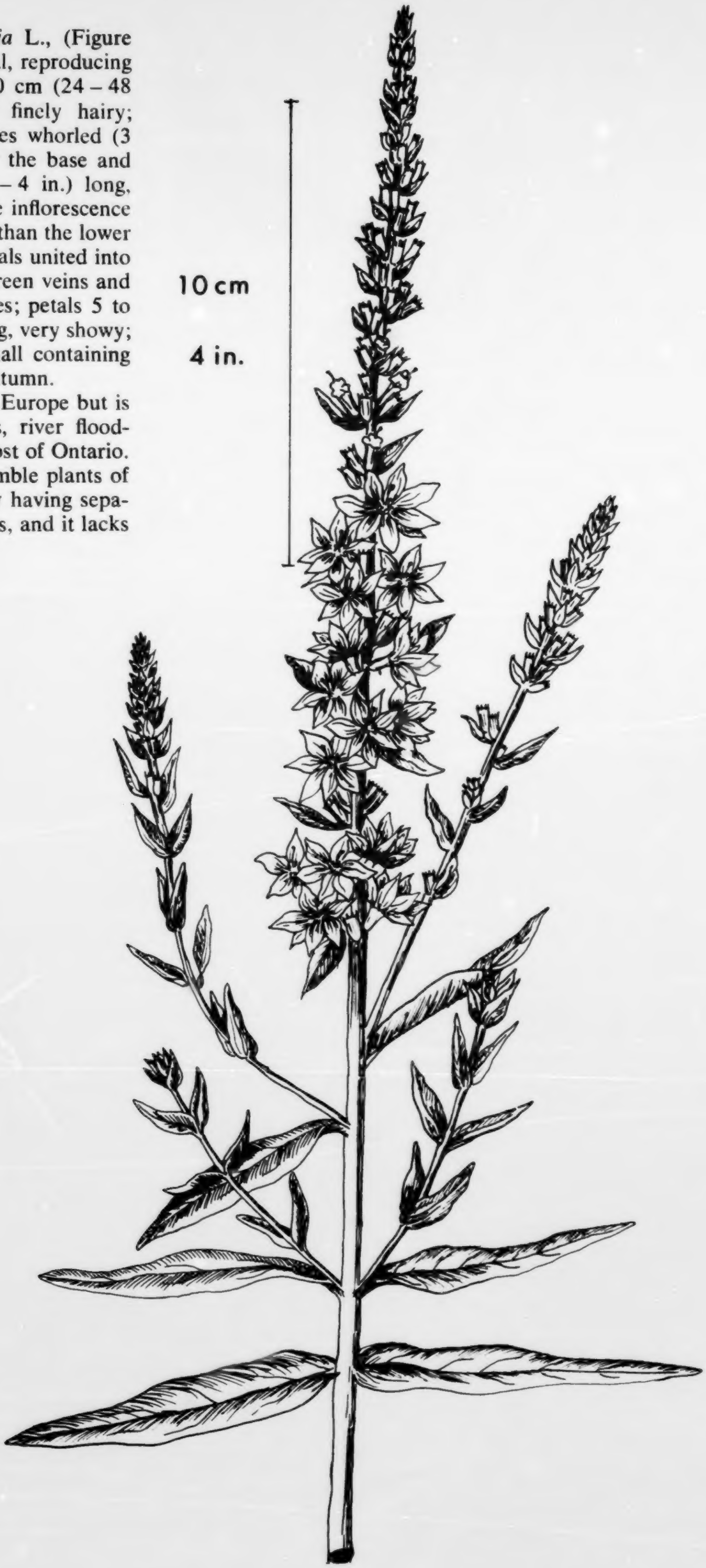


Figure 98. **Purple loosestrife**

# EVENING-PRIMROSE FAMILY (Onagraceae)

**Yellow evening-primrose,** *Oenothera biennis* L., (Figure 99) [onagre bisannuelle, Evening-primrose] Biennial or short-lived perennial, or rarely annual, reproducing only by seed. Taproot, especially of biennial plants, becoming thick, fleshy and deeply penetrating (A); stems erect, up to 2 m (6½ ft) high, usually somewhat branched, the branches spreading and becoming erect, often hairy, either green or purple-tinged; leaves of first-year plants in a rosette, their short stalks (a) gradually broadening into the elliptical to oblong leaf blades, green or with a reddish cast, margins irregular or weakly toothed; stem leaves alternate (1 per node), stalkless, similar to the basal leaves but gradually smaller upwards, with wavy or toothed margins; flowers in long spikes on stems and branches; each flower in the axil of a small leafy bract (b) which resembles the lower stem leaves but is usually much shorter than the flower; flowers stalkless but mistakenly appear short-stalked, the lowermost portion (c) of the apparent "stalk" being the ovary and the thinner portion (d) above this being the hypanthium (floral tube) at the top of which are 4 narrow green sepals (e), 4 large yellow petals 1 – 2.5 cm (⅖ – 1 in.) long, and 8 stamens; edges and tips of sepals (f) united in unopened flower bud; seedpod (g, C) 1 – 3.5 cm (⅖ – 1½ in.) long, nearly cylindrical but tapering towards the tip, splitting downwards from the tip into 4 valves (h) to release the seed; seeds irregular in shape, dark reddish-brown to black with rough surfaces. Flowers from July to September.

Yellow evening-primrose occurs throughout Ontario in waste areas, roadsides, lakeshores, river valleys and occasionally in fields of winter wheat or fall rye where its long spikes of bright yellow flowers are very conspicuous.

**Small-flowered evening-primrose,** *Oenothera parviflora* L., (not illustrated) [onagre parviflore, and in error, Yellow evening-primrose], a very similar plant but differs by having slightly smaller flowers, the petals of which are usually not more than 1.5 cm (⅗ in.) long; longer leafy bracts below each flower, these about as long as the whole flower; purplish hair with slightly enlarged or bulbous bases on the leaves and stem; and the tips of the sepals in the unopened flower buds being very thin and not united. Small-flowered evening-primrose occurs throughout Ontario in similar habitats.

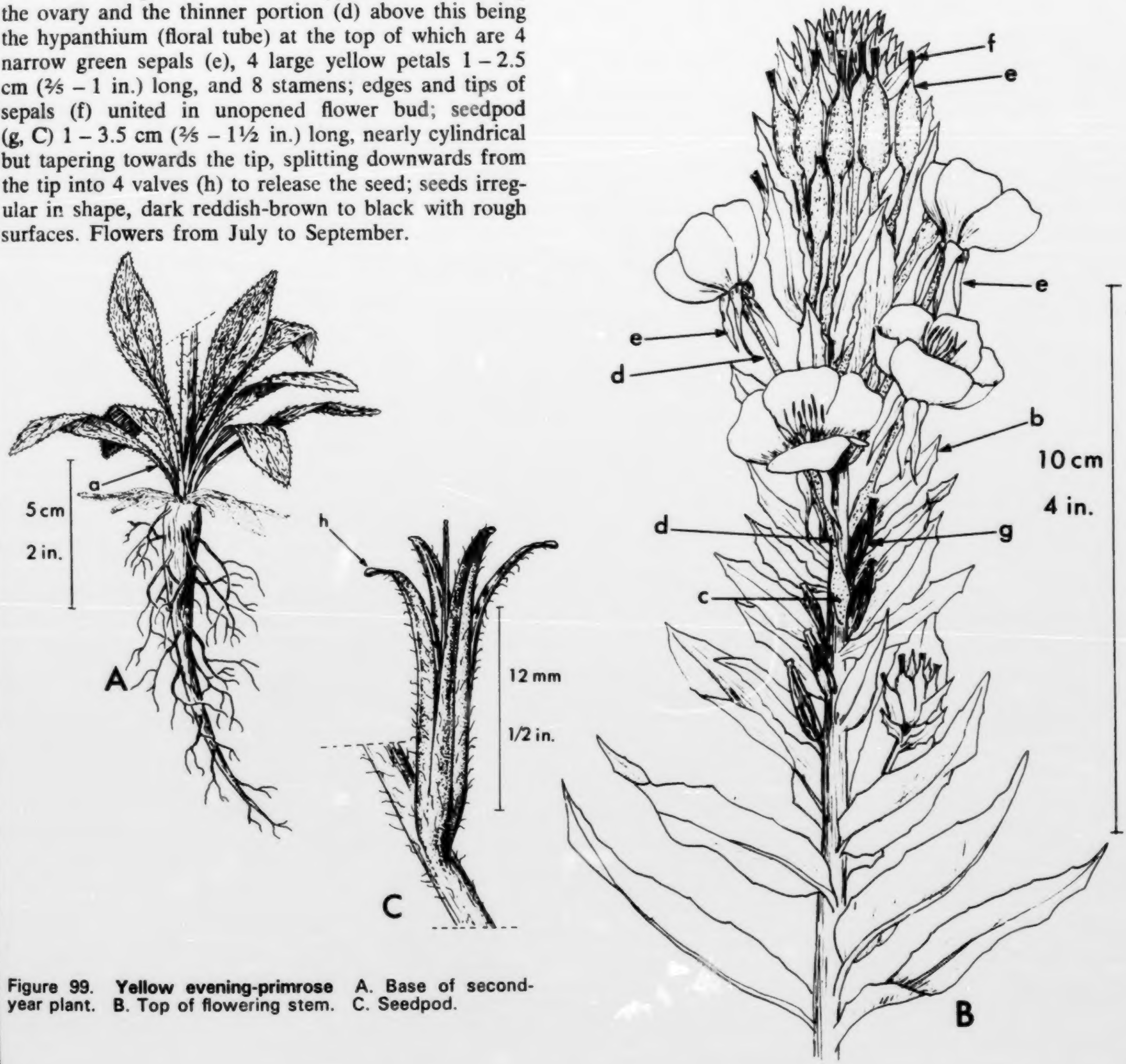


Figure 99. **Yellow evening-primrose** A. Base of second-year plant. B. Top of flowering stem. C. Seedpod.

# CARROT or PARSLEY FAMILY (Umbelliferae)

**Wild carrot,** *Daucus carota* L., (Figure 100, Plate 27) [carotte sauvage, Bird's-nest, Queen Anne's-Lace] Biennial or, occasionally, annual and sometimes a short-lived perennial, reproducing only by seed. Seedlings emerge during spring and early summer, with 2 long, narrow, thin cotyledons (seed leaves) (a); first true leaf is compound with 3 main divisions (A); later leaves compound with many divisions; first-year plant usually stemless, with a deeply penetrating tough taproot and a rosette of stalked, very finely dissected (lacy), hairy leaves; bases of leafstalks broad and flat (b); stem produced in the second year on biennial plants, erect, to 1 m (40 in.) tall, branching, grooved, rough-hairy or bristly; stem leaves similar to basal leaves but smaller and on shorter stalks; base of leafstalk broadened and more or less circling the stem at each node (b); flowers white in compound umbels (large umbels made up of many smaller umbels) at tips of stem and branches (Plate 27); a whorl of several 3- to 5-branched bracts (c) at the base of each compound umbel; most flowers white but the central one of each umbel often purple; after flowering the umbel closes, forming what is commonly called a "bird's-nest"; fruits ("seeds") grayish to brownish with several rows of spines by which they cling to clothing and animal fur. Flowers from June to September. Stems, leaves and root have the familiar carrot odor.

Wild carrot occurs throughout most of Ontario in old pastures, waste places, roadsides, meadows and occasionally as a weed in gardens and flower borders. The cultivated carrot was developed from Wild carrot by selecting strains having soft juicy edible roots, but the weedy plant is distinguished by its coarse, woody, fibrous, unpalatable taproot.

**Caraway,** *Carum carvi* L., (not illustrated) [anis canadien], resembling Wild carrot, being about the same height, having finely dissected leaves and compound umbels of small white flowers but lacks the carrot odor. It is also a biennial but flowers in spring and early summer; its stems are not hairy, the bracts below the inflorescence are small and usually not branched, and its fruits ("seeds") are smooth (without hooked spines) and have a Caraway flavor. Caraway occurs along roadsides, in waste places and near old building sites in scattered localities throughout Ontario.

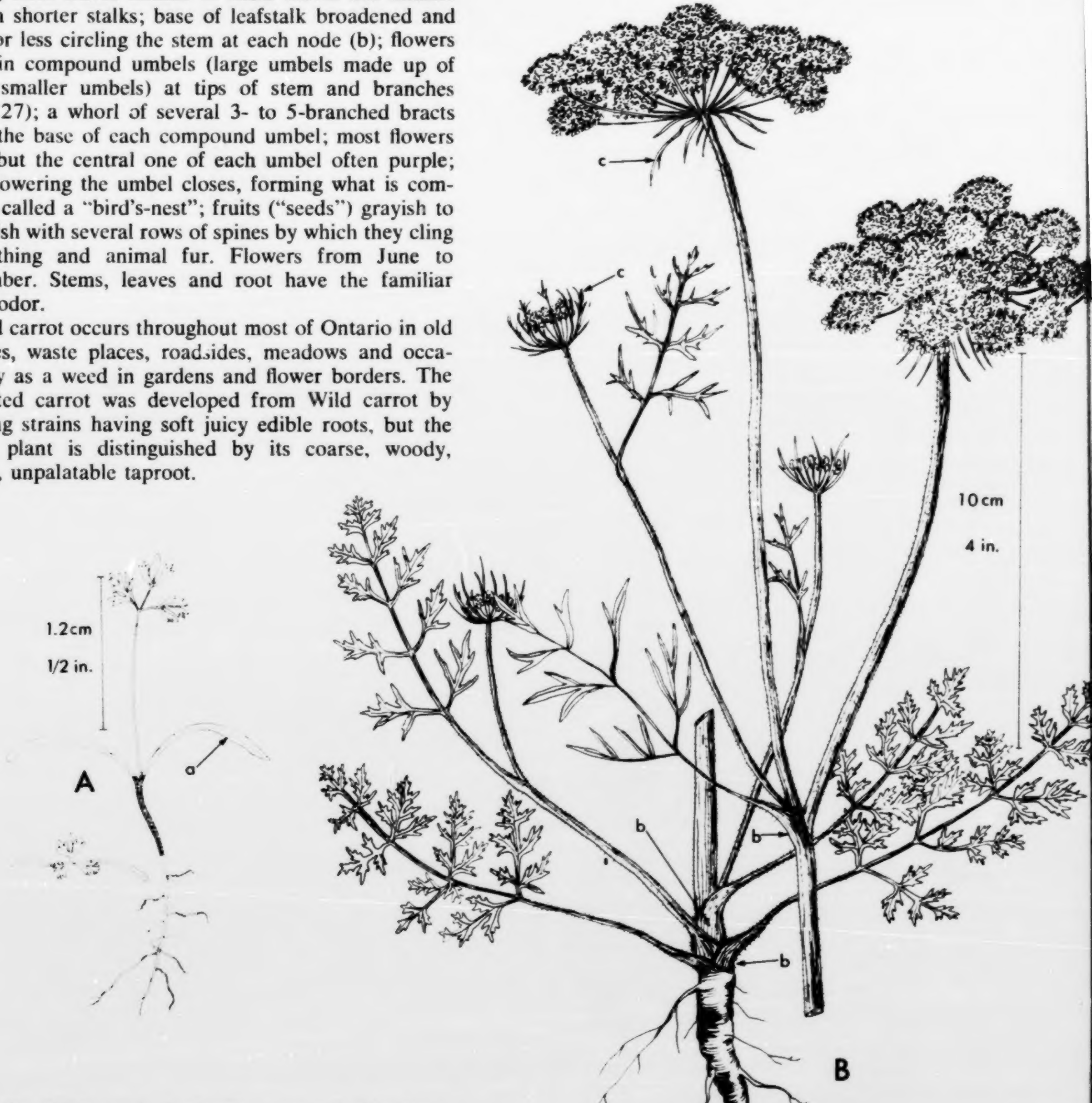


Figure 100. **Wild carrot** A. Seedling, top and side views. B. Base and upper part of flowering plant.

**Goutweed**, *Aegopodium podagraria* L., (Figure 101, Plate 28) [égopode podagraire, Bishop's goutweed] Perennial, reproducing by seed and by widely spreading, much-branched, whitish underground stems (rhizomes) (a) producing dense patches. Flowering stems erect, 40 – 90 cm (16 – 36 in.) high, branched in the upper part but seldom seen when the weed infests lawns or gardens; basal leaves arise directly from the rhizomes at the ground surface (b); these and the leaves arising from below the ground surface (c) (called "radical leaves") are all long-stalked, divided in 3 main parts (d) but quite variable as each part may be redivided into as many as 5 subdivisions, a single leaf therefore consisting of from 3 to as many as 15 broad, flat, somewhat oval leaflets, the separation often incomplete giving the lobed leaflet a "mitten-like" appearance (e); all leaflets irregularly coarsely to finely toothed; base of terminal leaflet symmetrical (f); base of lateral leaflet not symmetrical (g); stem leaves alternate (1 per node), similar to basal leaves but usually smaller, with fewer divisions and with a short stalk; bases of leafstalks (h) broad, flat and winged so they more or less encircle the stem at the node; flowers individually very small, white, in compound umbels without any bracts immediately below the umbel (j). Flowers from June to August.

Goutweed was widely cultivated as a vigorous perennial ground cover because of its strong spreading rhizome system, but the same characteristics enable it to escape from cultivation and invade lawns, hedges, gardens, roadsides and waste places, the habitats in which it occurs throughout most of southern Ontario. Some cultivated forms have variegated leaves, the leaflets being green near the center but whitish around their margins. These are usually less aggressive than forms with entirely green leaves. Goutweed is distinguished by its very vigorous aggressive spreading habit, its widely spreading whitish rhizomes, and its compound leaves consisting of 3 to 15 broad leaflets which usually have a symmetrical base (f) on the terminal leaflet but nonsymmetrical bases (g) on the lateral leaflets.

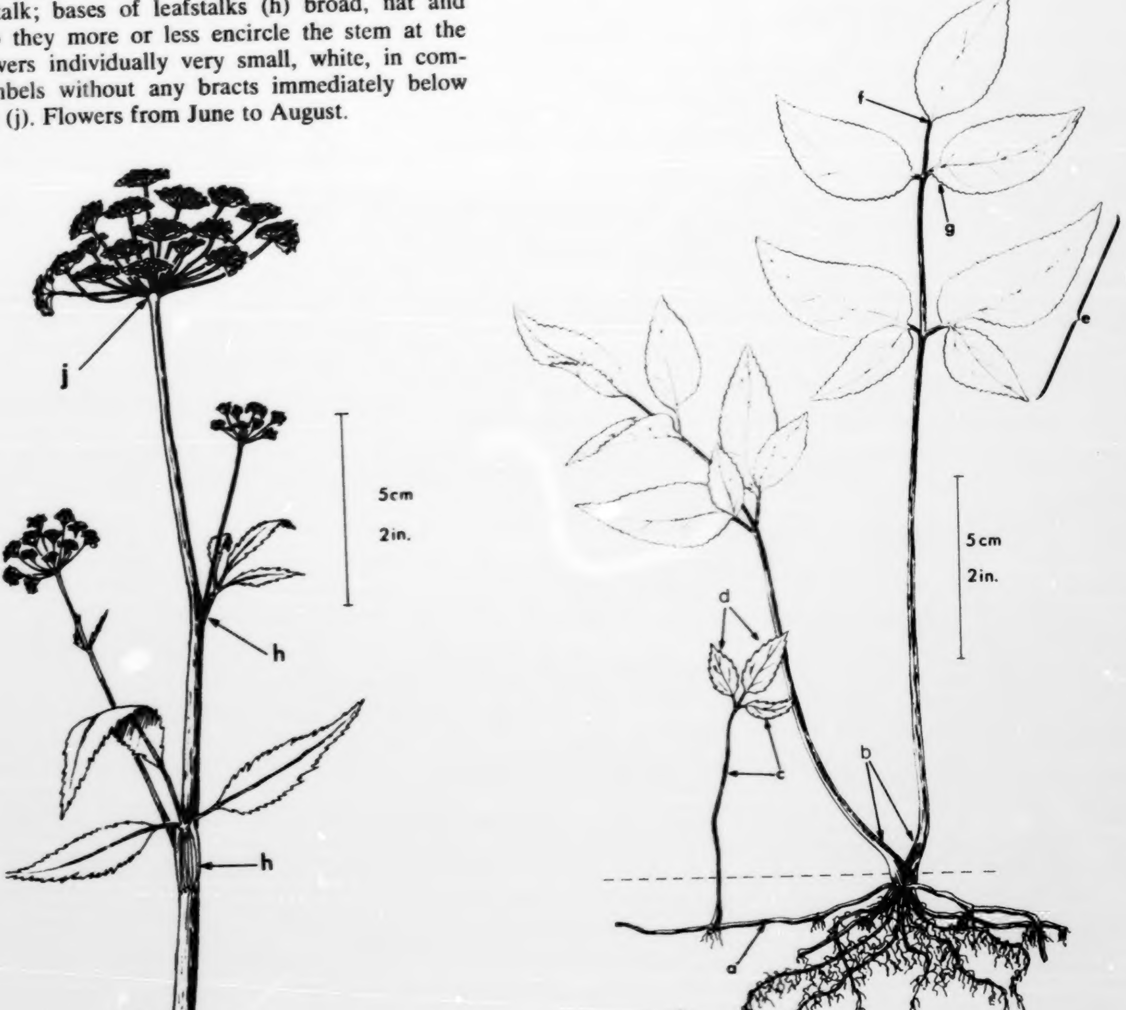


Figure 101. **Goutweed** A. Nonflowering plant with 2 basal leaves and 1 radical leaf. B. Top of flowering stem.

**Water-parsnip**, *Sium suave* Walt., (Figure 102) [berle douce] Perennial, reproducing only by seed. Roots coarsely fibrous or cord-like (A) but never tuberous. Stems erect, 60 – 200 cm (2 – 6½ ft) high, branching above, hollow except for a partition at each node; leaves alternate (1 per node), pinnately compound with usually 5 to 15 leaflets, these arranged in 2 to 7 pairs of opposite leaflets (a) along the leaf axis (rachis) (b) plus 1 terminal leaflet (c), the base of the leafstalk broad, thin-winged (d) and encircling the stem at the node (e), leaflets variable in shape from very narrow and linear to lance-shaped but always sharply saw-toothed; basal leaves growing submerged in water are 2 or more times pinnately divided (C) and quite unlike the stem leaves which grow above the water surface (B); flowers (f) individually very small, white, in compound umbels (1 large umbel (g) made up of several small umbels (h) ) varying 3 – 12 cm (1¼ – 4½ in.) across, with several, narrow, pointed bracts (j) at the base of each large umbel; fruits (pairs of "seeds") oval, 2 – 3 mm (1/12 – ⅛ in.) long. Flowers from July to September.

Water-parsnip is a native plant throughout Ontario and grows in low wet areas, often in standing water as deep as 1 m (40 in.). Water-parsnip has been reported to be poisonous to livestock and, although experimental feeding trials have not proven it to be harmful, livestock growers should be cautioned against the potential danger of this native plant. It is distinguished from Water-hemlock, known to be very poisonous, by its once-pinnately compound leaves, the several thin bracts (j) at the base of each compound umbel (g), the numerous thin or cord-like roots at the base of each stem (A), and the absence of well-defined cross-partitions as described under Spotted water-hemlock.

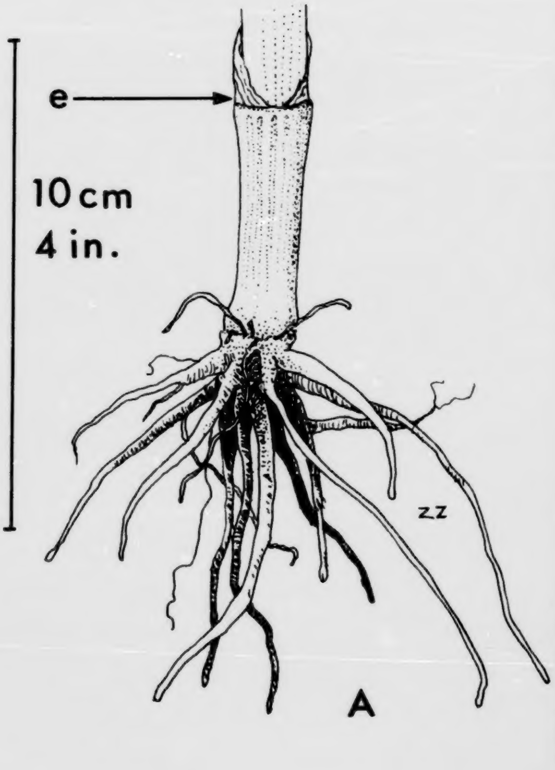
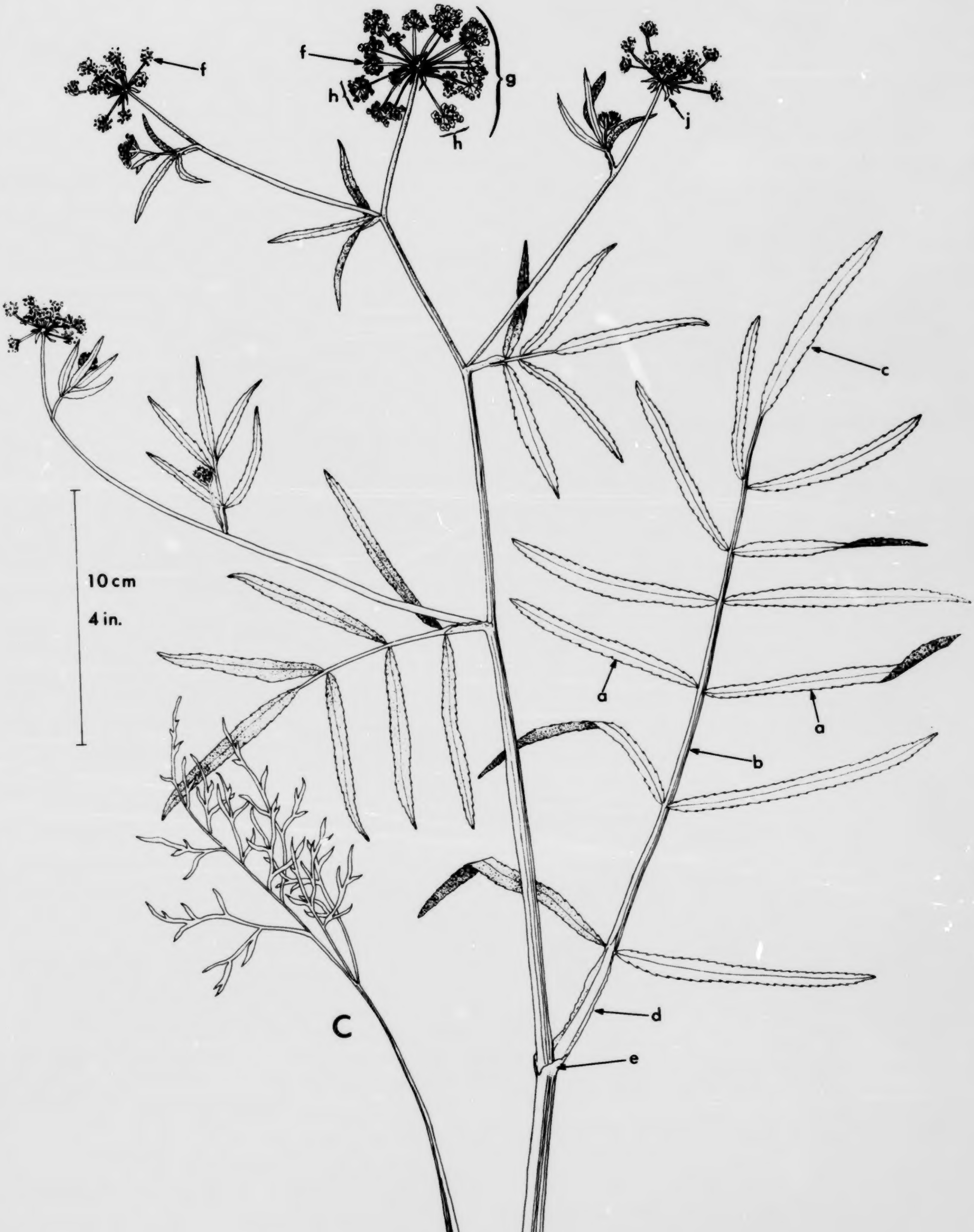


Figure 102. **Water-parsnip** A. Base of plant. B. Top of flowering stem. C. Much-dissected submerged leaf.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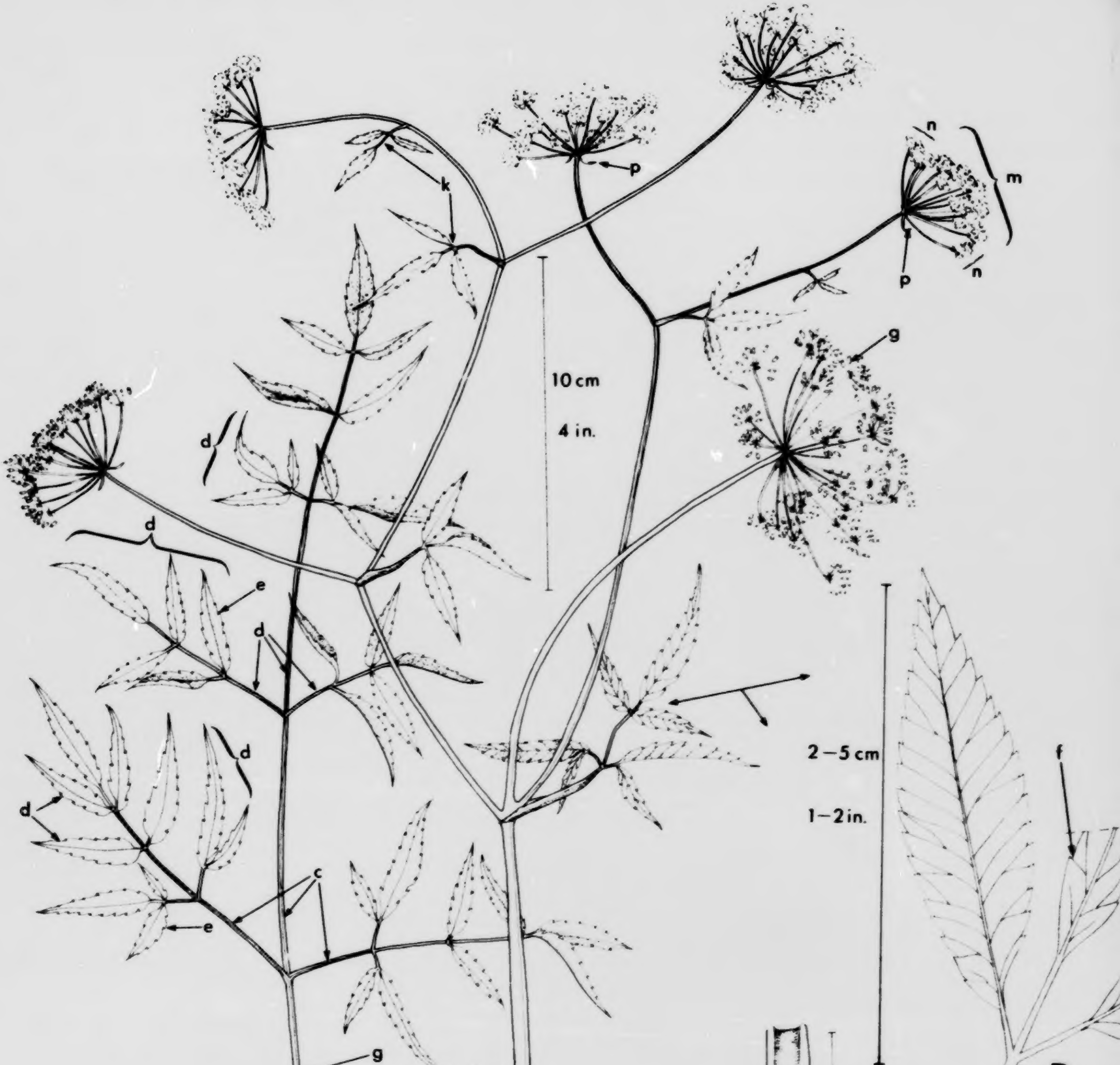
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B
C
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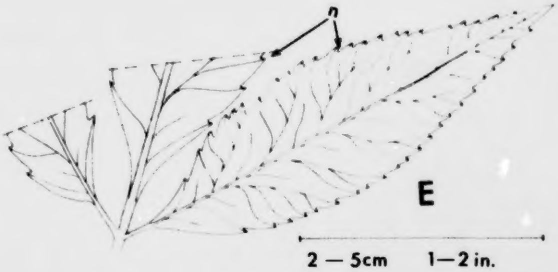
Figure 103. **Spotted water-hemlock** A. Base of plant with 1 compound leaf and 5 tuberous roots. B. Top of plant with several flowering branches. C. Base of plant split lengthwise showing narrow partitions separating thin cavities. D. Leaflet with veins going to notches between teeth. **Angelica** E. Leaflet with veins going to tips of teeth. **Cow-parsnip** F. Top of flowering stem.

**Spotted water-hemlock,** *Cicuta maculata* L., (Figure 103A-D) [carotte à Moreau, Beaver poison, Musquash-root, Poison parsnip, Spotted cowbane, Spotted-hemlock, Water-hemlock] Perennial, reproducing only by seed. Stems erect, 1 – 2 m (3 – 6½ ft) high, hollow except for a partition at each node, round or slightly angular with purplish lengthwise streaks; base of stem slightly swollen (C) and usually with several, narrow, cross-partitions (a) separating thin cavities (b), these visible by splitting the lower stem lengthwise downwards through the base; the freshly split-surfaces usually soon developing little droplets of an amber or yellowish oily secretion; the swollen base usually surrounded by 3 or more fleshy, thickened, tuber-like roots which taper into long thin strands (A); basal leaves at least twice compound, that is, each leaf divided once into 3 or more parts (c) and each of these parts divided again into smaller parts or leaflets (d), occasionally these again redivided into still smaller parts or leaflets (e); the veins in each leaflet going to the notches (f) between teeth on the margins (D); leafstalk (g) long, thin, often somewhat channeled and always broadened at the base (h) and partly surrounding the stem at the node (j); stem leaves alternate (1 per node), usually twice compound but leaves in the inflorescence frequently only once compound into 3 or 5 leaflets (k); flowers individually small, white, in compound umbels at ends of the stems and branches, 1 large umbel (m) made up of several small umbels (n); each compound umbel flattish or rounded across the top and up to 12 cm (5 in.) diameter but never spherical, usually without bracts or with only 1 or 2 bracts (p) at its base; fruit a pair of oval or oblong, yellowish-brown "seeds" (q) 2 – 4 mm (1/12 – 1/6 in.) long with prominent, rounded, brownish, lengthwise ribs on the outer surface. Flowers from June to August.

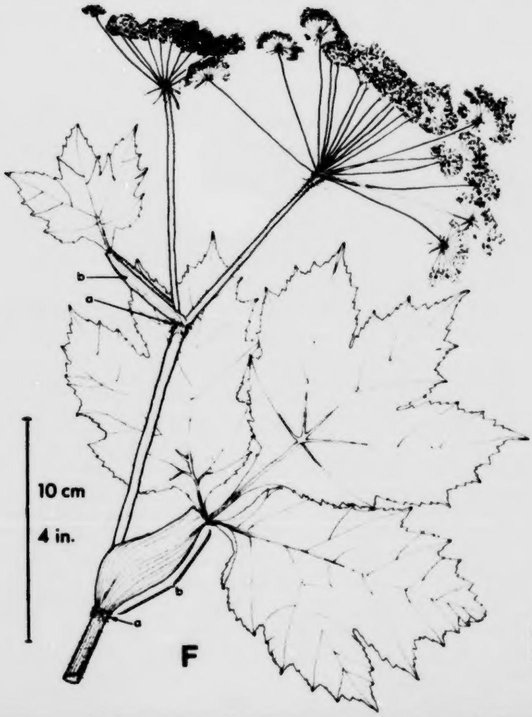
Spotted water-hemlock is a native plant throughout Ontario, occurring in wet meadows, pastures, ditches, edges of streams and rivers, and swampy areas. Spotted water-hemlock is the most poisonous of all Canadian plants to both human beings and livestock, all parts of the plant being poisonous. Extreme care must be taken when pasturing areas where this plant grows, and in collecting wild greens, roots or seeds for human consumption. It is distinguished by its combination of twice-compound leaves, base of split stem showing alternate narrow cross-partitions (a) and thin cavities (b), thickened tuberous roots (A) surrounding base of stem; white flowers in flattish compound umbels (m) up to 12 cm (5 in.) across, these without any or sometimes with 1 or 2 bracts (p) immediately below the umbel; and the veins in each leaflet going to the notches (f) between teeth on the margins (D).

**Poison hemlock,** *Conium maculatum* L., (not illustrated) [ciguë maculée, Deadly hemlock, Poison parsley], resembling Spotted water-hemlock but grows in dry areas in waste places, roadsides and abandoned yards. It is a biennial reproducing only by seed; stems 1 – 2 m (40 – 80 in.) tall, branched, smooth, often with purplish spots, from a thick whitish taproot; leaves finely divided (between Wild carrot and Spotted water-hemlock), hairless and often shiny; flowers white in loose, flattish compound umbels with several, short, narrow bracts just below each umbel. It is also very poisonous to livestock and humans but occurs in only a few widely scattered localities in Ontario.



**Angelica,** *Angelica atropurpurea* L., (Figure 103E) [angélique, Purple angelica] similar to Spotted water-hemlock but usually grows much taller (up to 2.5 m, 8½ ft) with thicker purplish stem (up to 5 cm, 2 in. diameter) lengthwise ridged and smooth or pebbled, has larger 2 to 3 times compound leaves with broader leaflets (often 2 – 5 cm, ⅘ – 2 in. wide), and much larger, coarse, compound umbels which are spherical and often 30 cm (12 in.) diameter. It may have alternate partitions and chambers in the base of the stem and a yellowish oily secretion on cut surfaces like Spotted water-hemlock, but rarely has thickened or tuberous roots. The veins in leaflets of Angelica go to the tips of the teeth (r) on the margins (E) rather than to the notches between the teeth as in Spotted water-hemlock (D).

**Cow-parsnip,** *Heracleum lanatum* Michx., (Figure 103F) [Bamboo, *H. maximum* Bartr.] Biennial or sometimes perennial; similar in form to Spotted water-hemlock but usually taller (1 – 3 m, 3 – 10 ft), and much coarser in general appearance; stems hollow, 1 – 5 cm (⅔ – 2 in.) diameter, often hairy (a) below the nodes; basal leaves long-stalked, 50 – 100 cm (20 – 40 in.) high, divided into 3 large, broad leaflets, these deeply lobed, sometimes the central one redivided, jagged-toothed with the veins mostly going to the tips of the teeth; stem leaves similar but smaller; lower portion of each leafstalk much expanded (b), almost balloon-like, circling the stem at the node; flowers white in large, nearly flat-topped, compound umbels 10 – 20 cm (4 – 8 in.) or more across; seeds large, flat, elliptic in outline, 7 – 14 mm (¼ – ⅝ in.) long. Occurs throughout Ontario in meadows and edges of moist woods. Not considered poisonous.



**Bulbous water-hemlock,** *Cicuta bulbifera* L., (Figure 104) [cicutaire bulbifére] Perennial, reproducing by seed and by bulblets. Stems slender, 30 – 100 cm (12 – 40 in.) high, hollow except at the nodes, round, basal portion not swollen but usually with alternate slender partitions and narrow cavities as in Spotted water-hemlock (Figure 103C); main roots somewhat thickened and fleshy or slender and cord-like; basal and lower stem leaves alternate (1 per node), 2 to 3 times compound, each leaf divided into 3 or more parts (a), with each of these parts divided again (b) and sometimes redivided a third time (c), but the leaflets very slender and appearing almost like thin branches (B); upper leaves less divided, and those of the true branches (d) not divided at all (e), bearing in their axils (angle between leaf and stem) clusters of small bulblets (f); flowers individually very small, arranged in small compound umbels (g) at the ends of the main stem and a few branches, sometimes the white flowers interspersed with small bulblets similar to those in the axils of leaves. Flowers from July until autumn.

Bulbous water-hemlock is a native plant which occurs throughout Ontario in wet habitats similar to where Spotted water-hemlock may also be found. Like Spotted water-hemlock, Bulbous water-hemlock is extremely poisonous to both livestock and human beings. Considerable care must be exercised when allowing livestock to pasture in areas where either of these two native plants grows or when collecting wild plants for human consumption.

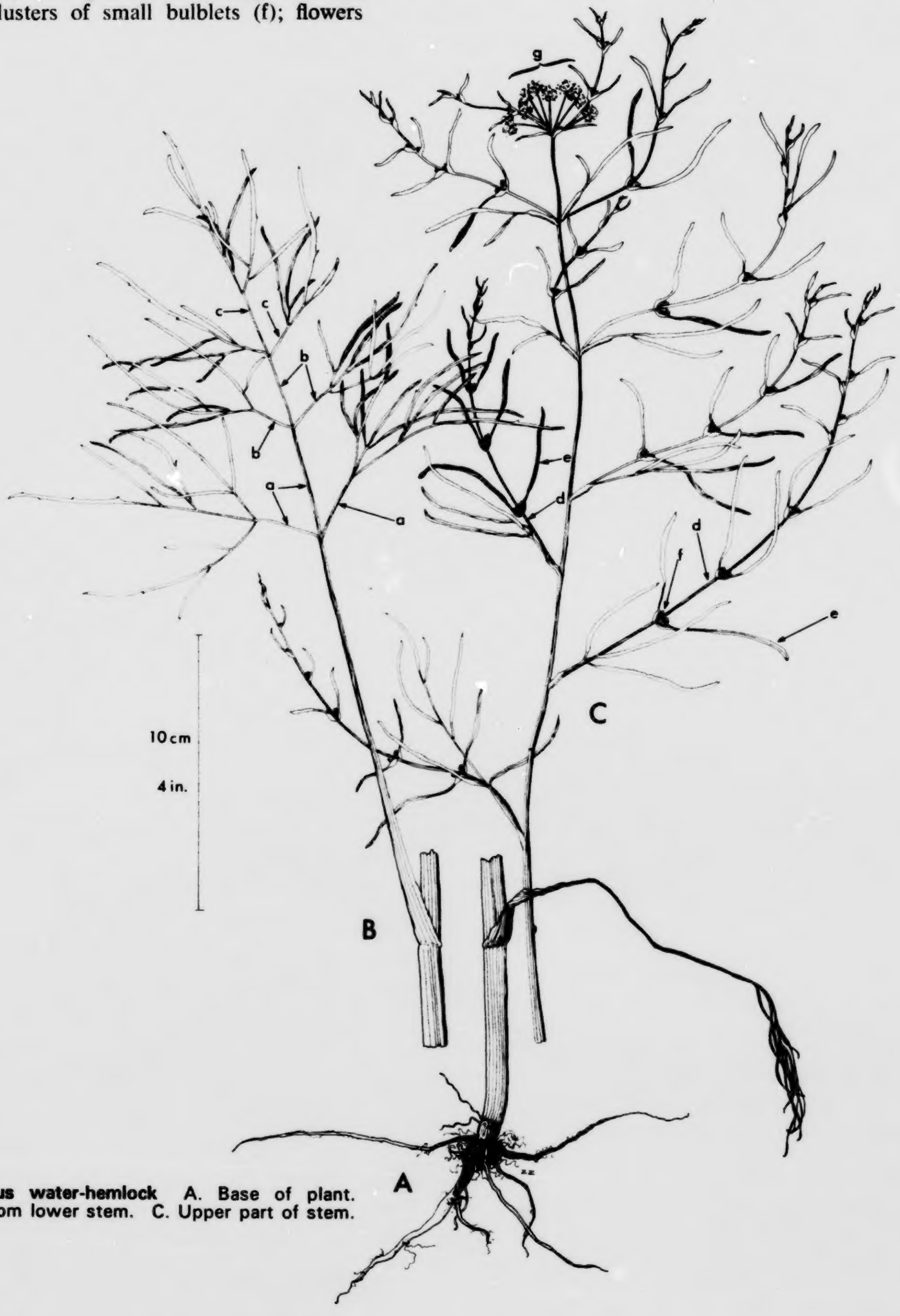
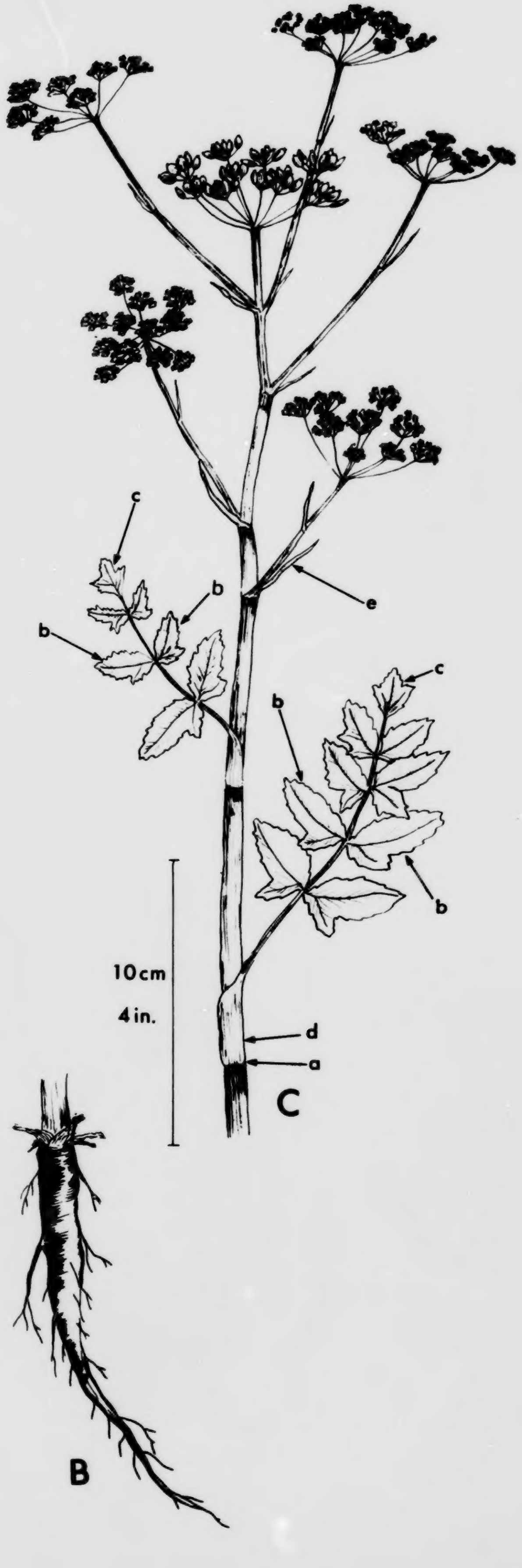


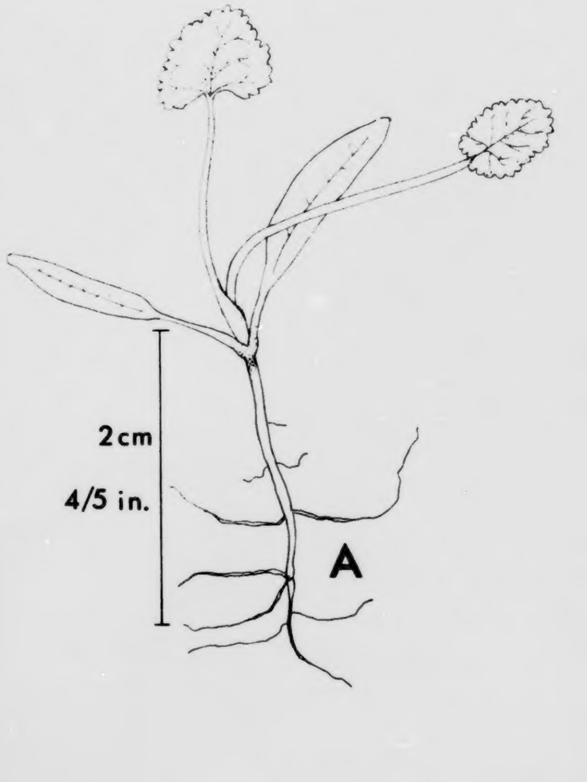
Figure 104. **Bulbous water-hemlock** A. Base of plant. B. Compound leaf from lower stem. C. Upper part of stem.

**Wild parsnip**, *Pastinaca sativa* L., (Figure 105) [panais sauvage, Yellow parsnip] Biennial, reproducing only by seed. Stems erect, 50 – 150 cm (20 – 60 in.) high, branched, hollow except at the nodes (a); seedlings with small ovate leaves on long stalks, later rosette leaves pinnately compound with broad leaflets; plants remaining as a rosette during the first season and developing a thick white to yellowish taproot (B); stem leaves alternate (1 per node), pinnately compound with usually 2 to 5 pairs of opposite (2 at a place), sharply toothed, relatively broad leaflets (b), and 1 somewhat diamond-shaped leaflet (c) at the tip; all leafstalks broad and circling (d) the stem; uppermost leaves reduced to narrow bracts (e) with flowering branches from their axils; flowers yellow, small, clustered in compound umbels 10 – 20 cm (4 – 8 in.) across; seeds round in outline, flat and winged. Flowers from May to late autumn. The whole plant has a distinctive parsnip odor.

Wild parsnip occurs throughout Ontario in abandoned yards, waste places, meadows, old fields, roadsides and railway embankments. It is very similar to the cultivated parsnip and some stands may merely be the cultivated parsnip which escaped or persisted from earlier plantings. Some people develop a severe skin irritation from contact with the leaves of Wild parsnip, but the root of this plant is edible. It is distinguished from other members of the Carrot Family by its pinnately compound stem leaves with broad, sometimes coarsely lobed leaflets (b, c), yellow flowers and distinctive odor.

Figure 105. **Wild parsnip** A. Seedling. B. Taproot. C. Top of flowering stem.



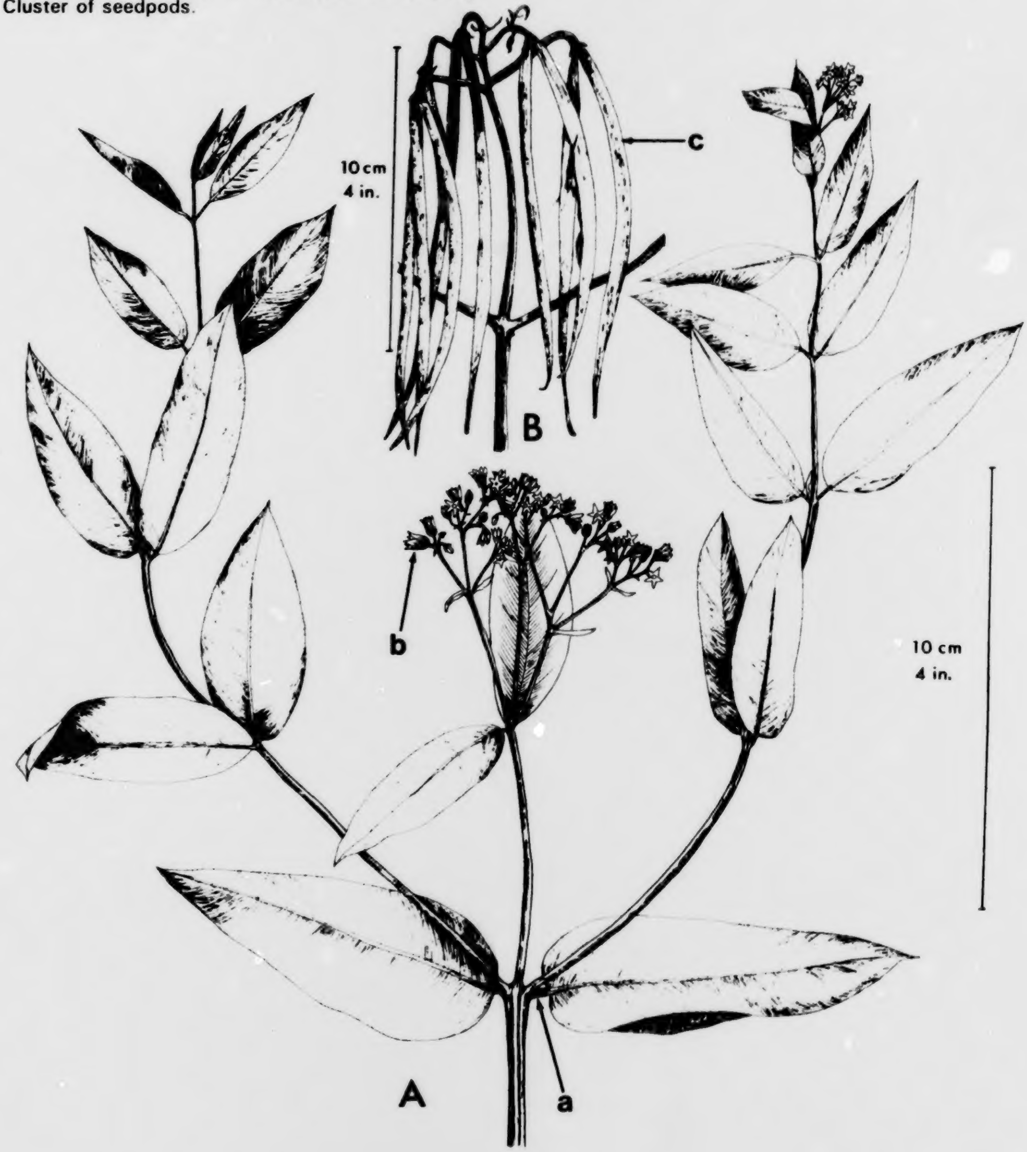


**Spreading dogbane**, *Apocynum androsaemifolium* L., (Figure 106) [apocyn à feuilles d'androseme, Indian hemp] Perennial, reproducing by seed and by spreading underground rhizomes. Stems erect or leaning, occasionally unbranched but usually repeatedly branched in upper part, 20 – 75 cm (8 – 30 in.) high, slender, smooth, often reddish; leaves opposite (2 per node), oblong to ovate, often drooping, on short stalks (a); upper surface bright to dark green, undersurface lighter green to whitish-green, young leaves at ends of branches distinctly whitish; flowers (b) in branched clusters at ends of stems and small branches. Corolla whitish to pinkish, bell-shaped, 6 – 10 mm (¼ – ⅖ in.) long; seedpods (c) usually in pairs, long, thin, pencil-like, splitting lengthwise with a single slit to release the small, slender seeds each with a long, white, silky parachute. All parts of the plant contain milky juice. Flowers from June to August.

Spreading dogbane occurs throughout Ontario in pastures, edges of woodland, waste areas, fields and roadsides, usually in dry areas or on shallow soils. It is distinguished by its slender somewhat fleshy appearance, leaves opposite, short-stalked (a), often drooping, undersurface slightly hairy and lighter green, the younger ones whitish-green; its clusters of pinkish flowers (b) usually 6 mm (¼ in.) or longer, its pencil-like seedpods (c), and milky juice.

**Indian hemp**, *Apocynum cannabinum* L., (not illustrated) [apocyn chanvrin, Dogbane], very similar to Spreading dogbane but often grows up to 1 – 1.5 m (40 – 60 in.) high, has usually broader ovate to elliptic leaves on longer stalks and its whitish or greenish-white flowers are usually less than 6 mm (¼ in.) long. Indian hemp flowers at about the same time as Spreading dogbane and occupies similar habitats but is not as common, and is found mainly in southern Ontario. Both Spreading dogbane and Indian hemp may be poisonous to livestock.

Figure 106. **Spreading dogbane** A. Upper part of flowering plant. B. Cluster of seedpods.

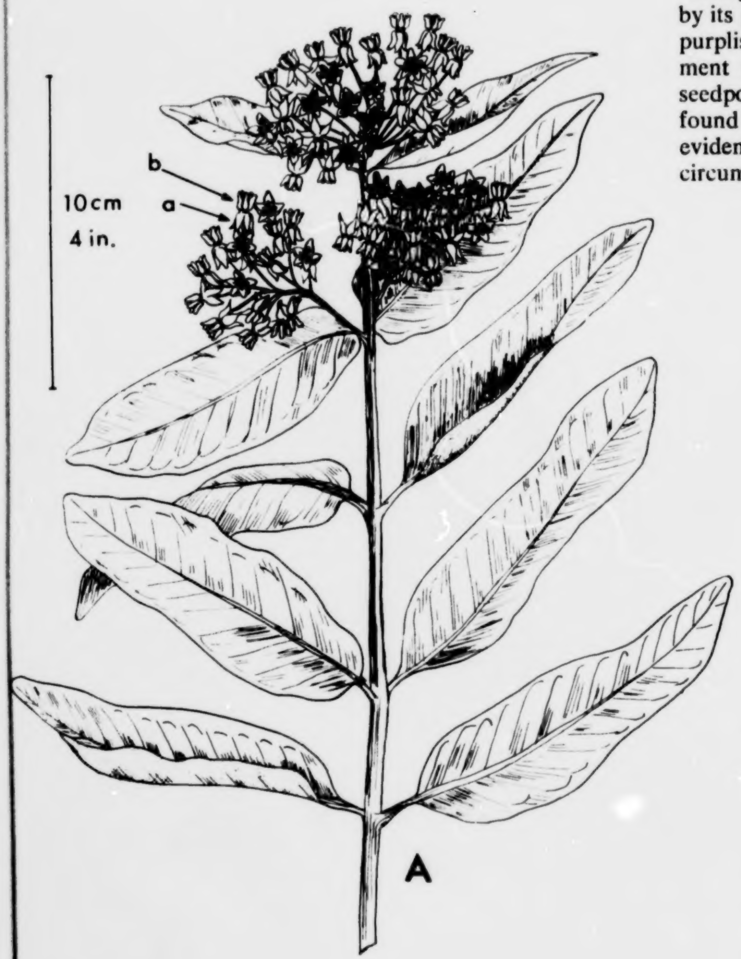


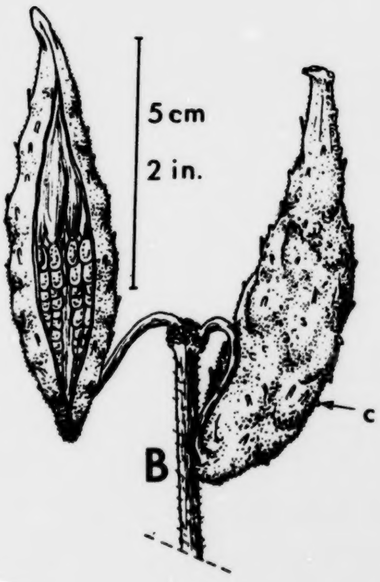
# MILKWEED FAMILY (Asclepiadaceae)

**Common milkweed**, *Asclepias syriaca* L., (Figure 107, Plate 29) [asclépiade de Syrie] Perennial, reproducing by seed and by horizontally spreading underground roots which produce new leafy stems. Stems erect, 1 – 2 m (3 – 6½ ft) high, stout, unbranched or sometimes with 1 or 2 branches near the top, usually several stems close together from the underground root system; leaves opposite (2 per node) or whorled (3 or more per node), oblong with a rounded or tapered base and a rounded to somewhat pointed tip, without teeth, underside covered with fine velvety hair, upper surface usually without hair and deeper green; flowers in dense, nearly spherical clusters or umbels at tip of stem and from axils of upper leaves, each flower 8 – 10 mm (¼ – ⅖ in.) across, greenish to purplish or whitish, with 5 thin sepals and 5 larger petal lobes (a) bent back along the flower stalk and an unusual arrangement of 5 hoods and horns forming a crown or "corona" (b) around the top of each flower. The flowers are uniquely adapted for insect pollination having waxy pollen in tiny wishbone-shaped structures which hook onto an insect's leg but come off on the flower of a different plant. Fruits at first green, fleshy, covered with soft, warty protuberances (c), later turning brown, splitting lengthwise along a single opening and releasing numerous seeds; usually only 1 or 2 (rarely up to 5) seedpods (B) develop from the many flowers of a single flower cluster; seed flat, oval, with a tuft of long silky hair at one end. The whole plant, root, stem, leaves, flowers and fruit, contain abundant, thick, white, milky juice. Flowers from mid-June to August, and matures seed from August to October.

Common milkweed occurs throughout southern Ontario in pastures, meadows, waste places, roadsides and cultivated land. It is especially common in the Manitoulin Islands and the east-central portions of southern Ontario, but it seems to be increasing in most other portions of the province as well. It is distinguished by its pairs of broad, oval, softly hairy leaves, umbels of purplish to whitish flowers with their peculiar arrangement of parts, and the large, thick, softly warty (c) seedpods (B). Other species of milkweed have been found to be highly toxic to livestock, and circumstantial evidence suggests Common milkweed may, under some circumstances, also be toxic.

Figure 107. **Common milkweed** A. Top of flowering plant. B. Seedpods, 1 open showing seeds.





**Whorled milkweed,** *Asclepias verticillata* L., (Figure 108) [asclépiade verticillée] Perennial, reproducing only by seed. Stems erect, 20 – 90 cm (8 – 36 in.) high, sparingly branched in the upper part, slender, 1 or several from a cluster of fibrous roots; bases of old stems often persisting (a); leaves very narrow, in whorls of 3 to 6 at each node of the stem; flowers and seedpods (b) very similar to Common milkweed but flowers smaller and greenish, and the seedpods smaller, thinner, and lacking the soft, warty bumps. Flowers from July to September.

Whorled milkweed occurs in dry open areas in pastures, around woods, and along roadsides in the western portion of southern Ontario. It is poisonous to livestock.

**Dog-strangling vine,** *Cynanchum nigrum* (L.) Pers., (Figure 109) [cynanque noir, Black swallow-wort] Perennial, reproducing by seed and by spreading underground rhizomes. Stem vine-like, herbaceous or with woody base (a) which overwinters successfully in Ontario, 1 – 2 m (3 – 6½ ft) long, scrambling or climbing over fences and other vegetation and often forming impenetrable masses. Leaves opposite (2 per node), oval to oblong with rounded bases and abruptly pointed tips (b); flowers small, in small umbel-like clusters (c) at tips of stems and upper branches; purple-brown to dark purple; seedpods slender, 4 – 6 cm (1½ – 2¼ in.) long, broadest near the base and long-tapered to a slender tip, opening along one side and releasing many, small, flat, brownish seeds with long, white, silky parachutes (B). All parts of the plants may contain small quantities of white, milky juice. Flowers from late June until autumn.

Dog-strangling vine occurs in several localities in southern Ontario, growing in ravines, hillsides, waste areas, fence lines and hedges. It is distinguished by its perennial vine habit, opposite leaves, purplish flowers, slender seedpods with parachute seeds, and somewhat milky juice.

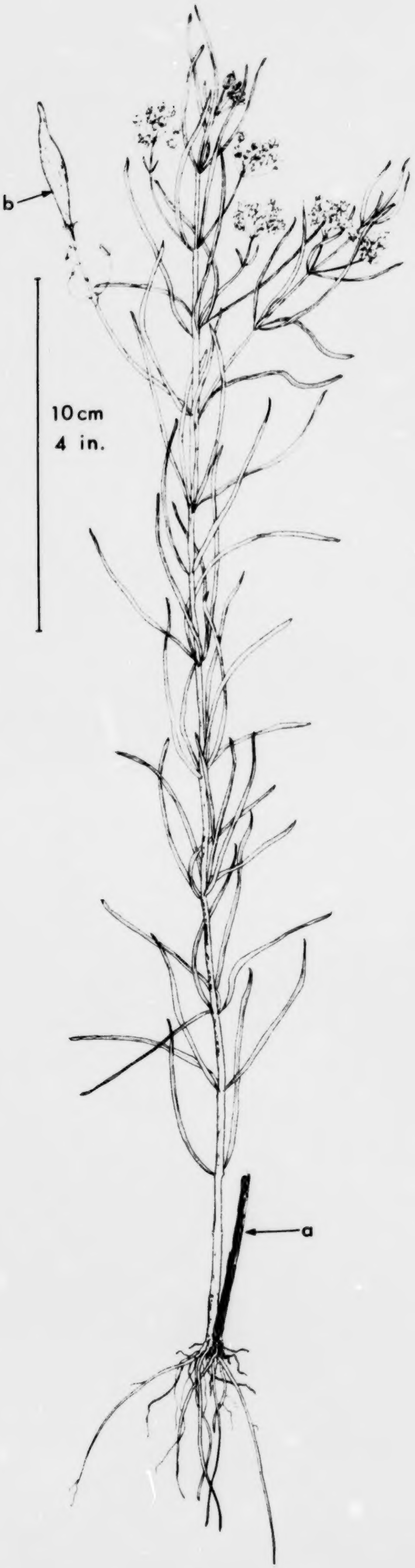


Figure 108. **Whorled milkweed**

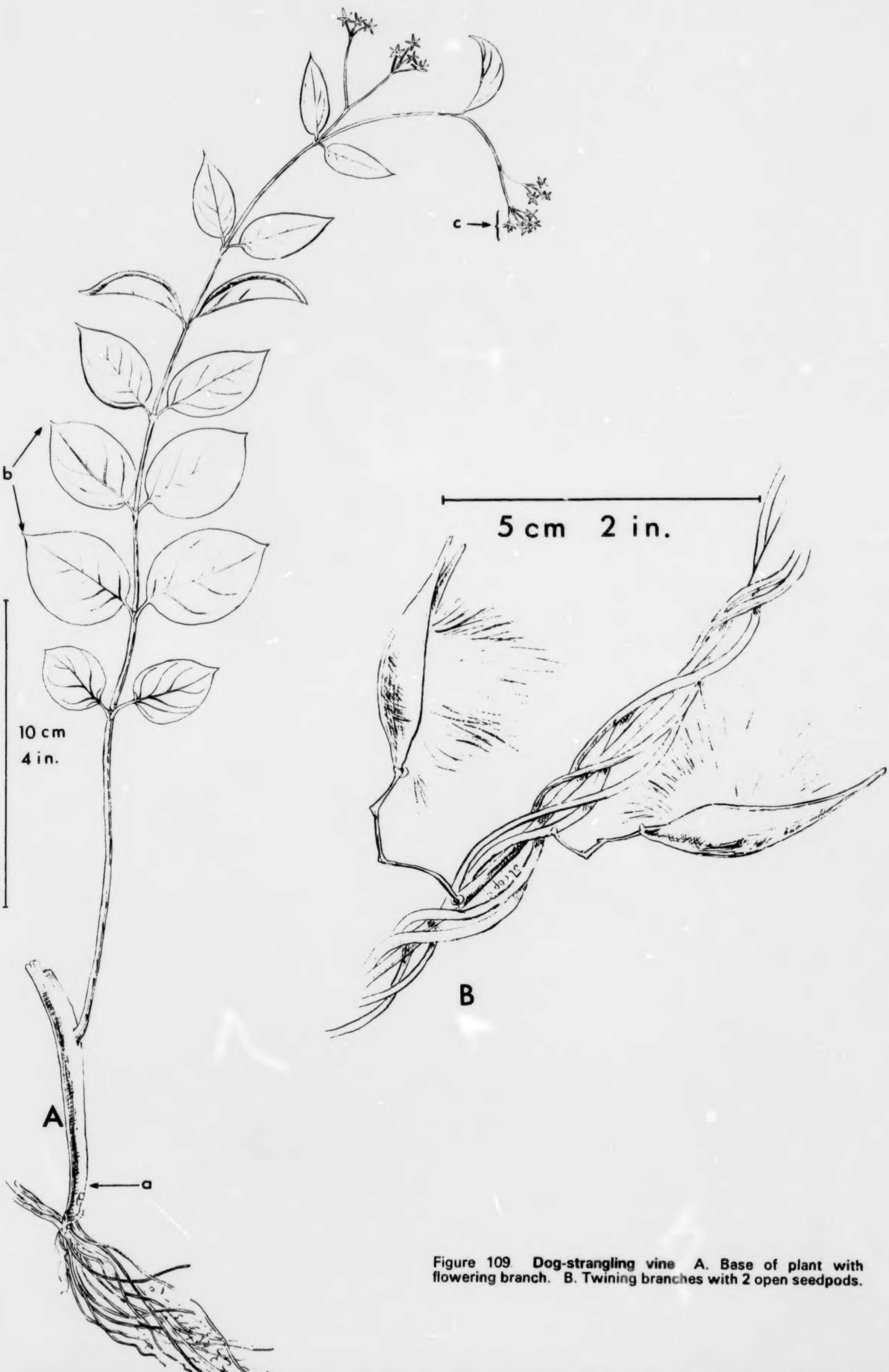

c
b
10 cm
4 in.
A
a
5 cm 2 in.
B

Figure 109. **Dog-strangling vine** A. Base of plant with flowering branch. B. Twining branches with 2 open seedpods.

# MORNING-GLORY FAMILY (Convolvulaceae)

**Field bindweed,** *Convolvulus arvensis* L., (Figure 110, Plate 34) [liseron des champs, European bindweed, Small-flowered morning-glory, Wild morning-glory] Perennial, reproducing by seed and by an extensively spreading and very persistent, whitish underground root system (a). Stems slender, smooth, usually twining or curling (b), prostrate or climbing on any nearby object; leaves alternate (1 per node), with short or long stalks, very variable in form but commonly arrowhead-shaped with 2 basal lobes (c) and smooth margins, sometimes long and narrow (d), or broader (e) or nearly round except for the 2 basal lobes; flowers on long stalks (f) from axils of leaves, always with a pair of small, narrow, green bracts (g) on the flower stalk some distance below the flower; flowers with 5 small green sepals (h) and a white to pinkish funnel-shaped corolla 2 – 2.5 cm (⅘ – 1 in.) diameter when fully opened; seedpods roundish, about 5 mm (⅕ in.) long containing 1 to 4 seeds each of which is about 3 mm (⅛ in.) long, pear-shaped and 3-angled with 1 side rounded and with tiny grayish bumps. Flowers from mid-June until autumn.

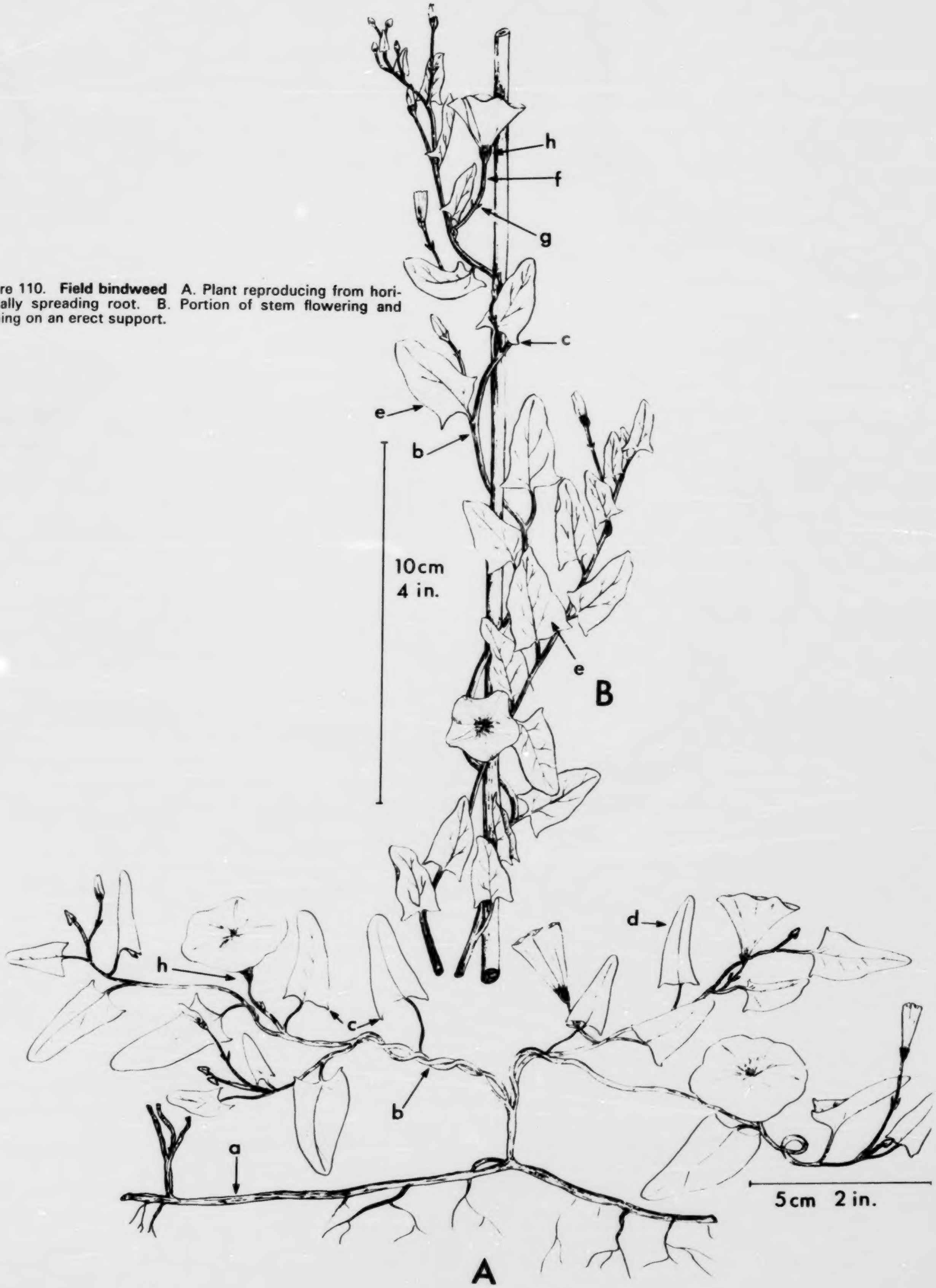
Field bindweed occurs throughout Ontario in cultivated fields, gardens, lawns, roadsides, and waste places. It is distinguished from Hedge bindweed, which also has perennial roots, by its smaller leaves, flowers usually not over 2.5 cm (1 in.) diameter, and the 2 small bracts (g) near the middle of the flower stalk (f), these tiny bracts never enclosing the base of the flower. It is distinguished from Wild buckwheat by being perennial with extensively creeping, white, cord-like, fleshy roots (a) which produce new shoots and form dense patches; by its white or pinkish, funnel-shaped flowers with long stalks, and by the absence of ocrea (membranous sheath) surrounding the stem at the base of each leaf-stalk (see Figure 28a).

**Hedge bindweed,** *Convolvulus sepium* L., (not illustrated) [liseron des haies, Hedge morning-glory, Large morning-glory, Wild morning-glory], also a creeping-rooted perennial very similar to Field bindweed. It is distinguished by having usually larger leaves, much larger flowers, corolla 3 – 8 cm (1¼ – 3 in.) long and nearly as wide, 2 large leafy bracts 1.5 – 3.5 cm (⅗ – 1½ in.) long at the top of the flower stalk and enclosing the base of the flower but without tiny bracts well below the flower (as (g) on the flower stalk in Figure 110B), and larger, roundish seeds about 5 mm (⅕ in.) long, and rough with tiny black bumps.

**Dodder,** *Cuscuta* spp., (Plate 30) [cuscute], an annual, reproducing only by seed. The Dodders are parasitic plants with leafless, threadlike, orange or reddish stems twisting and twining around other plants, often forming dense stringy masses. Being totally without chlorophyll, they must obtain all of their growth requirements (water, minerals, carbohydrates) from other living green plants around which they wind and become attached. Dodder seed germinates in the soil and sends up a slender, threadlike, orange or reddish stem without any cotyledons (seed leaves). This slender stem sways or rotates slowly until it touches the stem or leaf of another plant and begins to wind around it. If this plant is susceptible to attack by Dodder (and many are not), the Dodder stem immediately begins to form haustoria (tiny suckerlike roots). These penetrate the tissues of the host plant and extract all of the Dodder's subsequent growth requirements from it. If the seedling is unable to contact a susceptible plant, it soon withers and dies. Once attached to a susceptible host, the lower end withers and breaks its connection with the ground, while the upper end of the stem grows rapidly, branching and rebranching. Numerous small clusters of tiny whitish flowers form along these twining stems from July to September. Each flower is followed by a small, globular seedpod with up to 8 seeds.

Several species of Dodder are native in Ontario, but they occur chiefly in moist or swampy areas where they parasatize native plants. **Field dodder,** *Cuscuta campestris* Yunker, (not illustrated) [cuscute des champs], is the most important of these as a parasite on agricultural crops, attacking carrots, petunias, tomatoes, etc.

Figure 110. **Field bindweed** A. Plant reproducing from horizontally spreading root. B. Portion of stem flowering and twining on an erect support.


h
f
g
c
e
b
10cm
4 in.
e
B
d
h
c
b
a
5cm 2 in.
A

# BORAGE FAMILY (Boraginaceae)

**Blueweed,** *Echium vulgare* L., (Figure 111, Plate 31) [vipérine, Blue devil, Blue thistle, Viper's bugloss] Biennial, occasionally annual or short-lived perennial, reproducing only by seed. First-year plant producing a rosette of long, narrow, harshly hairy leaves and a deeply penetrating fleshy taproot; flowering stems produced in the second year, or rarely in the first year and the plant acting as an annual; stems erect 30 – 90 cm (12 – 36 in.) high, 1 to several from each taproot, harshly hairy with a mixture of a few, scattered, long, stiff hairs among dense short hair, the longer hair having swollen reddish or blackish bases (a) visible as small bumps on the stem surface; stem leaves alternate (1 per node), similar to the basal leaves but smaller and narrower, harshly hairy, most hair stiff with swollen bases; flowers numerous in 1-sided, short, arching branches near the top of the stem; petals bright blue, forming an irregular corolla with the upper lobes (b) longer than the lower ones (c) and 4 of the 5 stamens (d) plus the hairy stigma (e) protruding from the corolla; seeds in the form of 4 hard, gray or brown, very rough nutlets about 3 mm (⅛ in.) long. Flowers from June until autumn.

Blueweed occurs throughout Ontario in coarse sandy or gravelly soil in pastures, waste places and roadsides. The bright blue flowers are attractive and provide significant pasture for honeybees. When the plant matures, the stiff hair of stem, leaves, and sepals becomes very sharp and hard and causes severe physical irritation to tender skin. It is distinguished by its deep thick taproot, long narrow rosette leaves, erect stem with short 1-sided branches of bright blue flowers, unequally lobed corolla with protruding stamens, and by being harshly rough-hairy throughout.

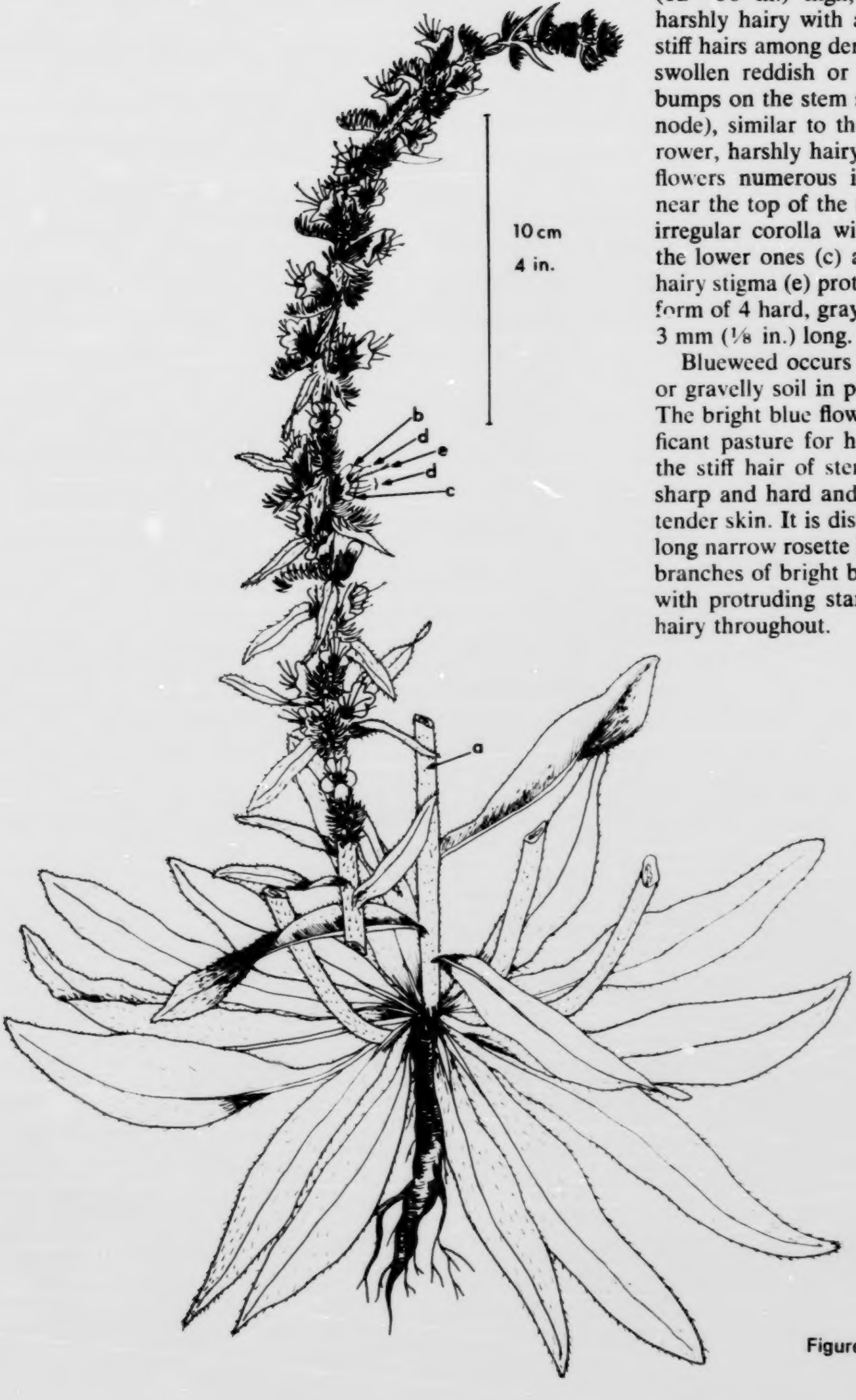
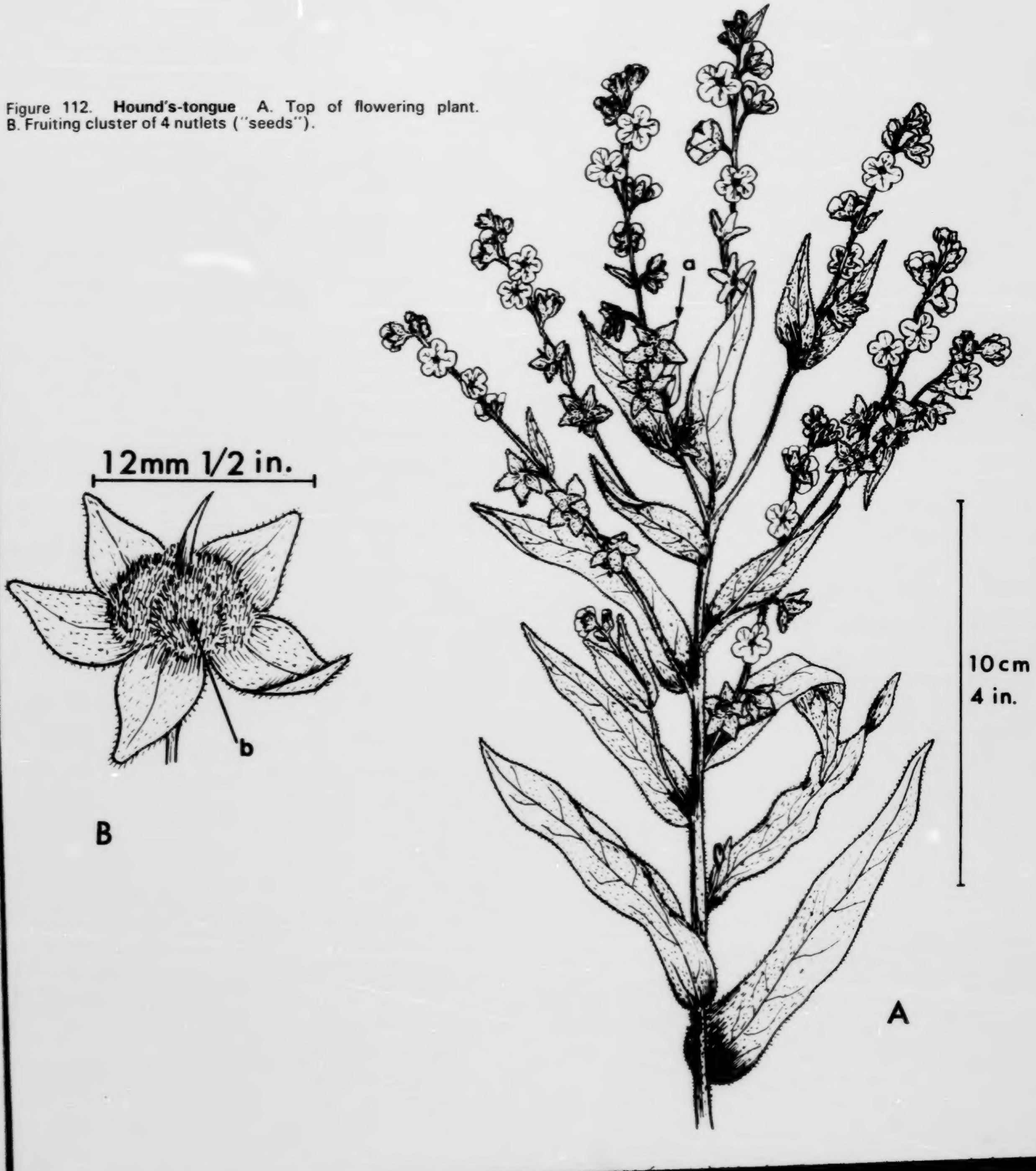


Figure 111. **Blueweed**

**Hound's-tongue,** *Cynoglossum officinale* L., (Figure 112) [cynoglosse officinale] Biennial, reproducing only by seed. First-year plant producing a rosette of leaves and a thick, deep taproot; flowering stem rising in the second year; stem 30 – 120 cm (1 – 4 ft) high, branching in the upper part, soft-hairy; rosette leaves soft and velvety, narrowly elliptic or broadest towards the end, 10 – 30 cm (4 – 12 in.) long and 2 – 5 cm (1 – 2 in.) wide with rather long stalks; stem leaves shorter, oblong or broadest near the stalkless base (where they are attached to the stem) and tapered towards the tip, not toothed; flowers in racemes from the upper leaf axils; sepals 5, united, with triangular lobes forming a star-shaped calyx (a); corolla reddish-purple or maroon, cup-shaped and about 10 mm (⅖ in.) across; fruit of 4 nutlets ("seeds") (b, B), rounded-triangular with a somewhat flattened upper surface and roughened by numerous very short barbed prickles. Flowers from late May until August.

Hound's-tongue occurs in southern Ontario in pastures, edges of woods, waste places and roadsides. It is distinguished by its rosette of large, softly hairy leaves; maroon flowers; and cluster of 4 rough-prickly, flattish nutlets (b).

Figure 112. **Hound's-tongue** A. Top of flowering plant. B. Fruiting cluster of 4 nutlets ("seeds").



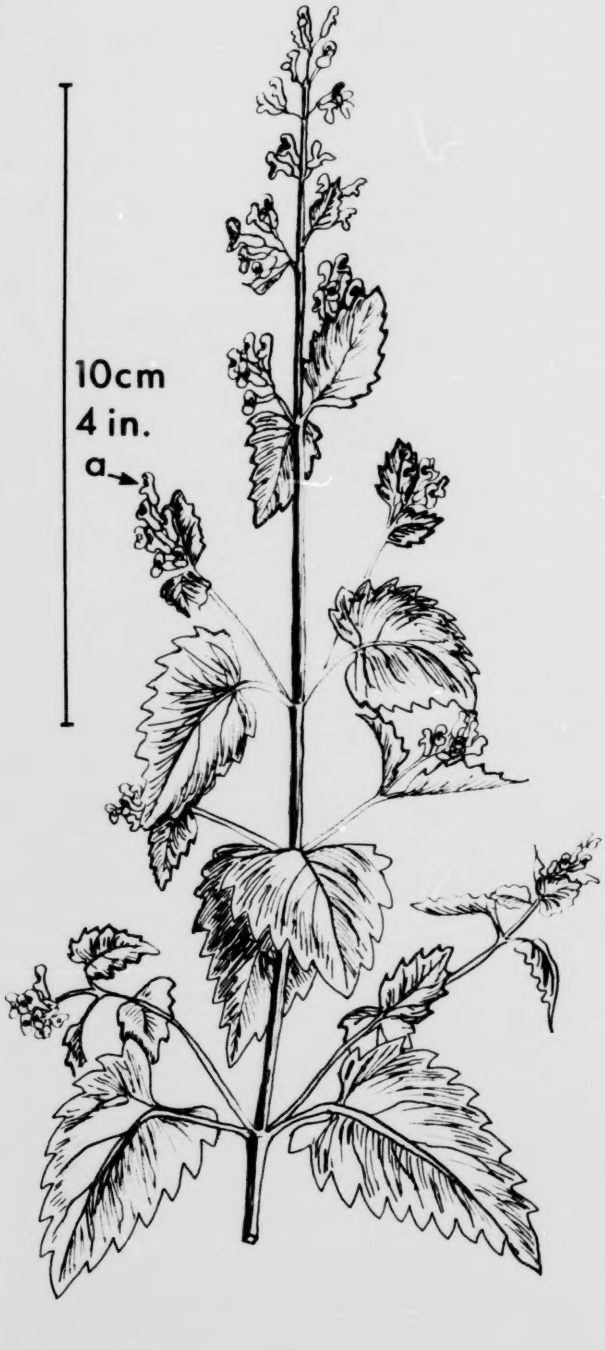


Figure 113. **Catnip**

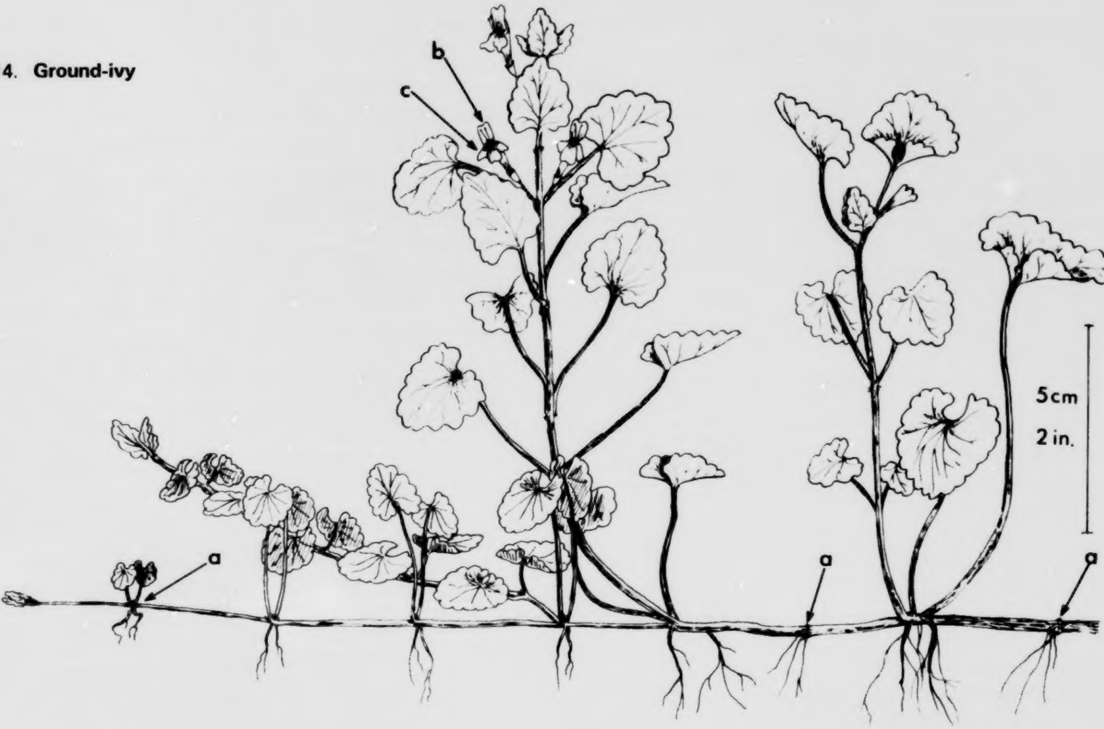
**Catnip**, *Nepeta cataria* L., (Figure 113) [herbe à chat] Perennial, reproducing by seed and by very short underground rhizomes. Stems erect, 40 – 100 cm (16 – 40 in.) high, square, densely white-hairy; leaves opposite (2 per node) on different sides of the square stem at successive nodes, heart-shaped, longer than wide, densely covered with short, soft, white hair especially on the underside; margins coarsely toothed, each tooth with rounded sides and a blunt point; flowers dull white, in dense, whorled clusters in axils of leaves near ends of stems and branches; calyx short, tubular, of 5 united sepals forming a short tube with 15 parallel veins and ending in 5 narrow, sharply pointed soft teeth; corolla dull white with purplish dots, formed from 5 united petals, 10 – 12 mm (⅖ – ½ in.) or sometimes longer and about 6 mm (¼ in.) wide, irregular, trumpet-shaped but 2-lipped at the end, the upper lip with 2 lobes (a), the lower lip with 3 lobes; each flower producing a cluster of 4 nutlets ("seeds") which are smooth, reddish-brown with 2 white spots at the lower end. All parts of the plant have a characteristic odor resembling mint, and the whole plant is frequently gray-green due to a dense covering of fine white hair.

Catnip was widely cultivated throughout Ontario and has escaped from cultivation in all parts of the province so now occurs in open forests, meadows, pastures, waste places, roadsides, around buildings and in gardens throughout. It is distinguished by its erect habit of growth, square stems, the opposite, stalked, coarsely toothed, heart-shaped leaves, its prominent trumpet-shaped 5-lobed corolla about 12 mm (½ in.) or longer, and its distinctive odor so attractive to cats.

**Ground-ivy**, *Glechoma hederacea* L., (Figure 114, Plate 35) [lierre terrestre, Creeping Charlie, Gill-over-the-ground] Perennial, reproducing by seed and by creeping stems. Stems prostrate, rooting at every node (a) which touches the ground, producing short, erect, leafy branches 10 – 30 cm (4 – 12 in.) high and slightly hairy; leaves opposite (2 per node), long-stalked, hairy, green or somewhat purplish; margins coarsely round-toothed to wavy-toothed; flowers 1 to several (usually in pairs) in axils of upper leaves; calyx short, tubular with 5 short, sharp, soft points; corolla blue-violet to purplish, about 10 – 23 mm (⅖ – ⅞ in.) long and 6 – 10 mm (¼ – ⅖ in.) wide, of 5 united petals, irregular, tubular, 2-lipped at the end, the upper lip with 2 shallow lobes (b) and the lower lip with 3 larger lobes (c); each flower producing 4 tiny nutlets ("seeds"). The leaves and stems have a strong, disagreeable, almost rancid mint-like odor but the flowers are sweeter and they are sometimes used as a garnish when icing cakes. Flowers from late spring until autumn.

Ground-ivy occurs throughout Ontario but is much more common in the southern parts of the province, infesting gardens, roadsides, waste areas, pastures, open woods and occasionally edges of cultivated fields. It is distinguished from other low-growing plants by its creeping square stems, opposite, long-stalked, rounded to kidney-shaped leaves with round or wavy teeth, prominent axillary flowers and strong, rather rancid, mint-like odor.

Figure 114. **Ground-ivy**



**Heal-all**, *Prunella vulgaris*, L., (Figure 115) [prunelle vulgaire, Self-heal] Perennial, reproducing by seed and by somewhat creeping stems. Stems prostrate to nearly erect, 10 – 50 cm (4 – 20 in.) high, rooting at nodes (a) touching the soil, square, sharply ridged on the angles, rough-hairy, leaves opposite (2 per node), ovate to elliptic or round, the lower ones usually broader and with longer stalks, green or with a purplish cast; margins smooth or shallowly and irregularly toothed; flowers in dense spikes or headlike clusters at ends of stems (B); usually in 3's in axils of very broad ovate or kidney-shaped bracts (b); calyx a 10-veined column ending in 1 broad, scoop-shaped upper tooth (c) and 4 thin, bristle-like lower teeth (d), often purplish; corolla blue-voilet to purplish or rarely pinkish or whitish, 10 – 20 mm (⅖ – ⅘ in.) long, of 5 united petals, irregular, tubular, 2-lipped at the end, the upper lip (e) rounded and arched, the lower lip with 2 small side lobes (f) and 1 larger central lobe (g); each flower producing 4 nutlets ("seeds"), these brownish to blackish, oval lengthwise but triangular in cross-section with 2 flat sides and the third rounded. Flowers from June to August.

Heal-all occurs both as a native plant and an introduced ornamental which has escaped from cultivation in most areas of Ontario. It is found in open woodland, meadows, pastures, waste areas, roadsides, lawns, and around buildings. Where subject to mowing or trampling such as in lawns or pastures, Heal-all will grow as a prostrate plant with stems rooting at nearly every node and producing only a few erect flowering branches; but where it grows without disturbance or in crowded situations the stem may be erect and up to 50 cm (20 in.) high. It is distinguished by its square stems, leaves opposite, stalked and with smooth margins, its compact headlike inflorescence with broad ovate or kidney-shaped bracts, green or purplish calyx having the 1 upper lobe (b) very broad, and its usually blue-violet flower with 2-lipped end.

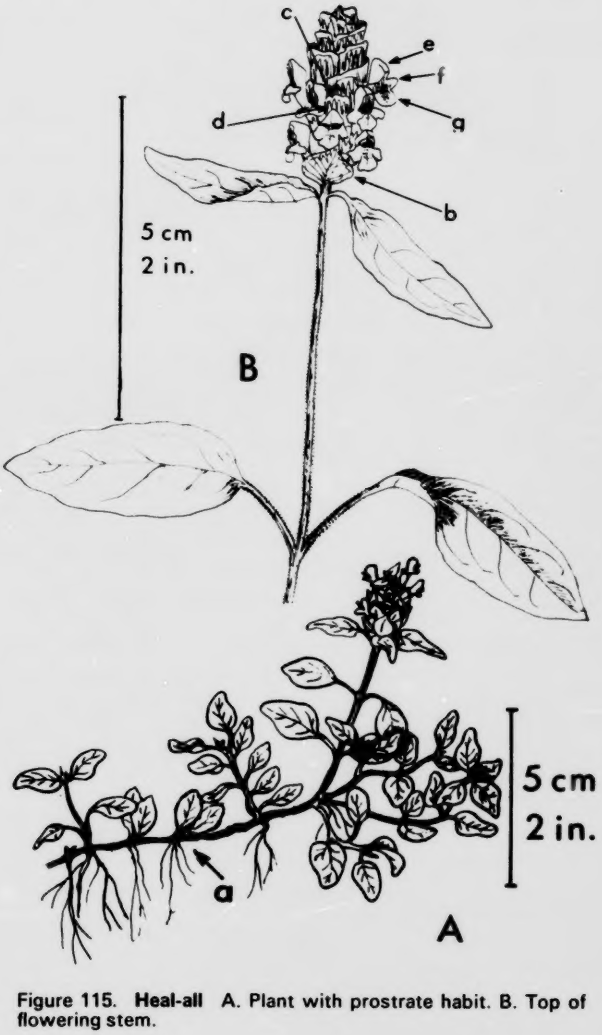
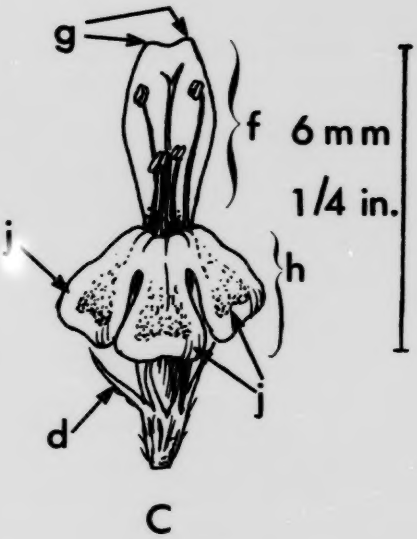
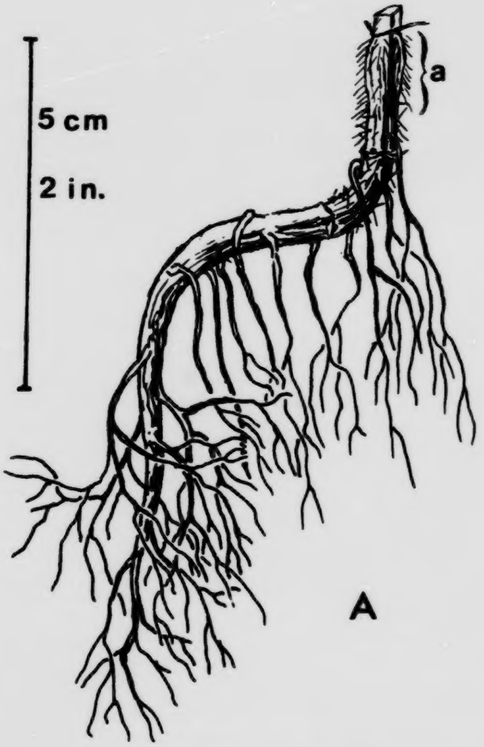


Figure 115. **Heal-all** A. Plant with prostrate habit. B. Top of flowering stem.

**Hemp-nettle**, *Galeopsis tetrahit* L., (Figure 116) [ortie royale, Bee nettle, Dog nettle, Flowering nettle] Annual, reproducing only by seed. Stems erect, 30 – 80 cm (12 – 32 in.) high, branched, square, usually swollen at the nodes (a), covered with rather harsh, straight, long, somewhat downward-pointing hair (b); leaves opposite (2 per node), ovate to elliptic with a stretched-out tip (c), stalked, sparsely hairy, margins with rounded teeth, veins mostly ending in notches between the teeth; flowers in dense clusters in the axils of leaves near the ends of stems and branches; calyx short, tubular, 10-ribbed, ending in 5 equal, narrow, sharp, spine-like teeth (d), these very spiny when mature (e); corolla pinkish to light purplish or whitish, often variegated, and usually with 2 yellow spots, 12 – 23 mm (½ – ⅞ in.) long, of 5 united petals, irregular, tubular, 2-lipped at the end, the upper lip (f) 2-lobed (g), lower lip (h) 3-lobed (j), each flower producing 4 egg-shaped nutlets ("seeds"), narrowed and somewhat triangular towards the basal end, about 3 mm (⅛ in.) long and grayish-brown. Flowers from mid-July to mid-August.

Hemp-nettle occurs throughout Ontario, especially in central and northern areas, forming dense stands in grainfields and also present in seeded pastures, gardens, waste areas and along roadsides. It is distinguished by being an annual with erect square stems covered with harsh downward-pointing hair (b), opposite leaves with stretched-out tips (c), margins with rounded teeth, and dense clusters of pinkish or light purplish flowers with sharp, pointed calyx lobes (d) which become hard and very spiny (e) at maturity.





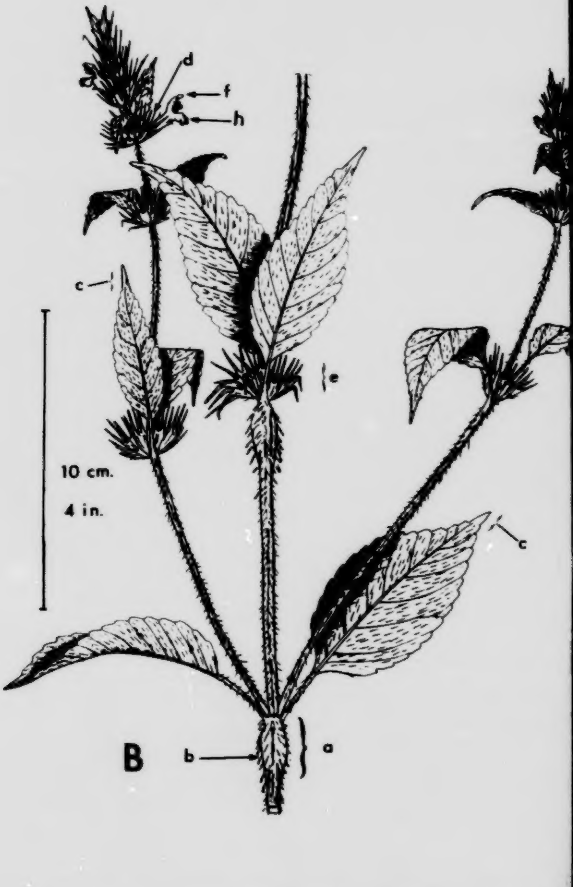


Figure 116. **Hemp-nettle** A. Base of plant. B. Flowering branches on main stem. C. Flower.

**Henbit**, *Lamium amplexicaule* L., (Figure 117) [lamier amplexicaule] Annual or winter annual, reproducing only by seed. Stems erect, 10 – 40 cm (4 – 16 in.) high, much-branched near the base, the branches spreading and becoming erect, square, finely hairy; leaves opposite (2 per node), lower ones long-stalked (a), broad, rounded to somewhat heart-shaped with coarsely lobed or irregularly toothed margins; upper leaves stalkless, broad-based, more or less clasping the stem; flowers (b) in clusters in axils of these broad, stalkless, upper leaves; calyx small, tubular, 5-ribbed, with 5 small, sharp but soft teeth; corolla pinkish or purplish, 12 – 18 mm (½ – ¾ in.) long, of 5 united petals, irregular, tubular, 2-lipped at the end, the upper lip (c) arched and with a tuft of hair on the top but not lobed, lower lip (d) 2-lobed. Flowers in spring and early summer and occasionally again in late summer and autumn.

Henbit occurs throughout southern Ontario in gardens, waste places and roadsides. It is distinguished by its annual, erect branching habit, square stems, opposite leaves, the lower ones long-stalked (a), the upper ones stalkless, broad, and clasping the stem, and its clusters of pinkish to purplish flowers in the axils of the broad upper leaves.

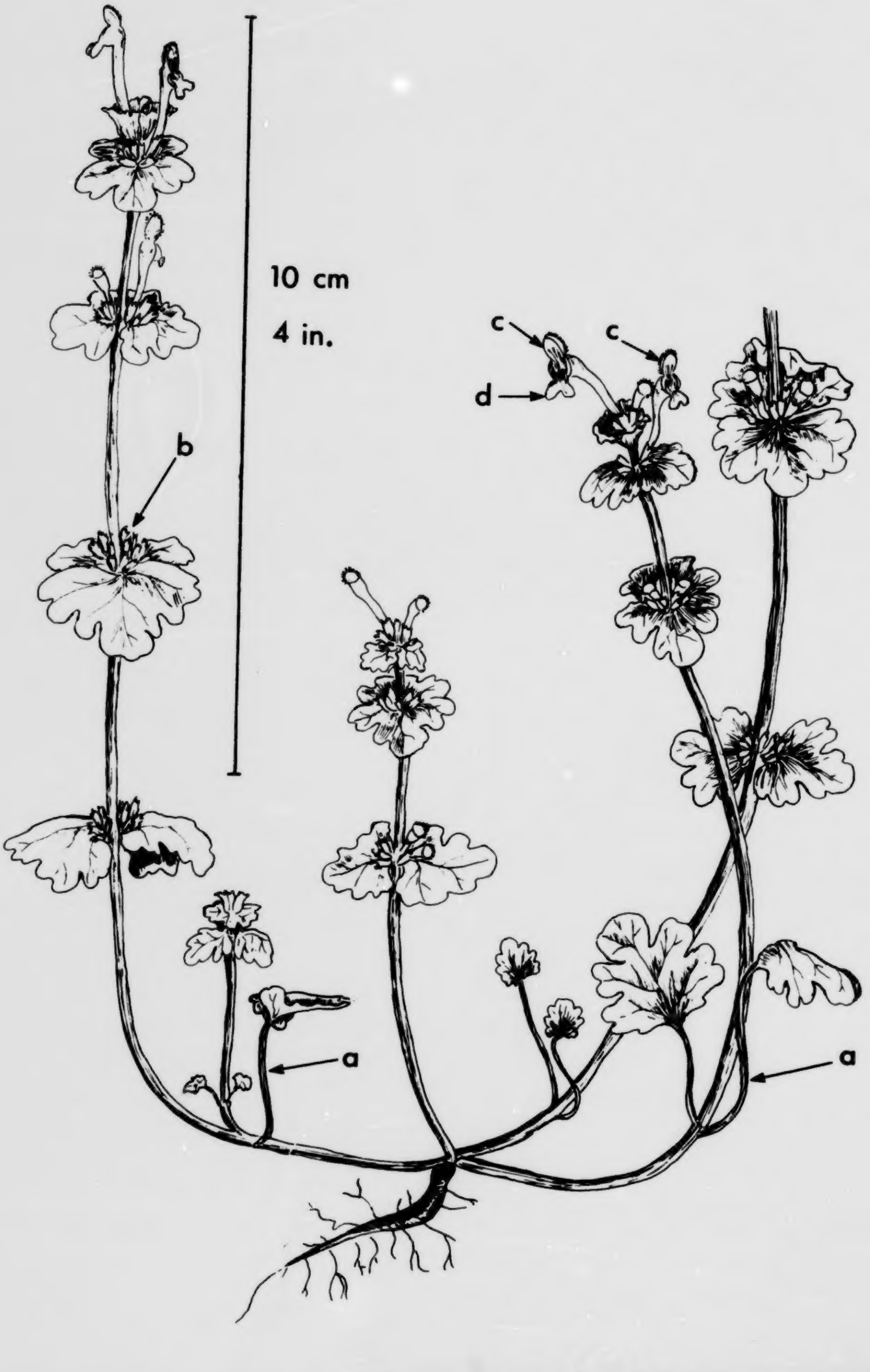
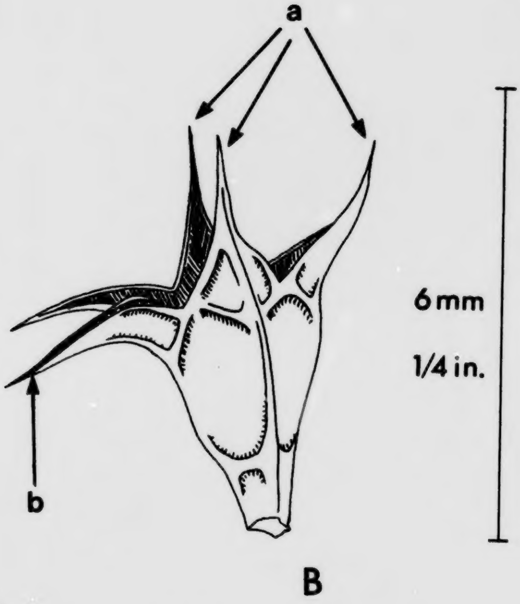


Figure 117. **Henbit**

**Motherwort**, *Leonurus cardiaca* L., (Figure 118) [agripaume cardiaque] Perennial, reproducing only by seed. Stems erect, 40 – 175 cm (16 – 70 in.) high, square, somewhat hairy along the angles, branched, frequently several stems from 1 coarsely fibrous root crown; leaves opposite (2 per node), lower ones long-stalked, rounded in outline, palmately cleft into usually 5 or more main lobes which are coarsely or irregularly toothed, upper leaves on shorter stalks, smaller, and only 3- or 5-cleft; flowers in clusters in the axils of small upper leaves; calyx tubular with 5, sharp, pointed lobes (B), 3 pointing upwards (a) and 2 downwards (b), becoming sharp, hard, and spiny at maturity; corolla pink to pale purple or whitish, upper lip conspicuously white-hairy, not lobed, lower lip 3-lobed; each flower producing 4 nutlets ("seeds") which are triangular, dark brown and hairy at the apex. Flowers from June to August.

Motherwort occurs throughout southern Ontario in yards, waste places, fence lines, and roadsides. It is distinguished in nonflowering stages by its palmately lobed leaves in geometrically precise arrangement in 4 vertical planes around the square stem. Flowering and fruiting plants are distinguished by their palmately lobed leaves, clusters of pinkish flowers in leaf axils, calyx of each flower with 5 very sharp lobes, 3 pointing upwards and 2 downwards, these becoming spiny burlike clusters on mature and dry stems.



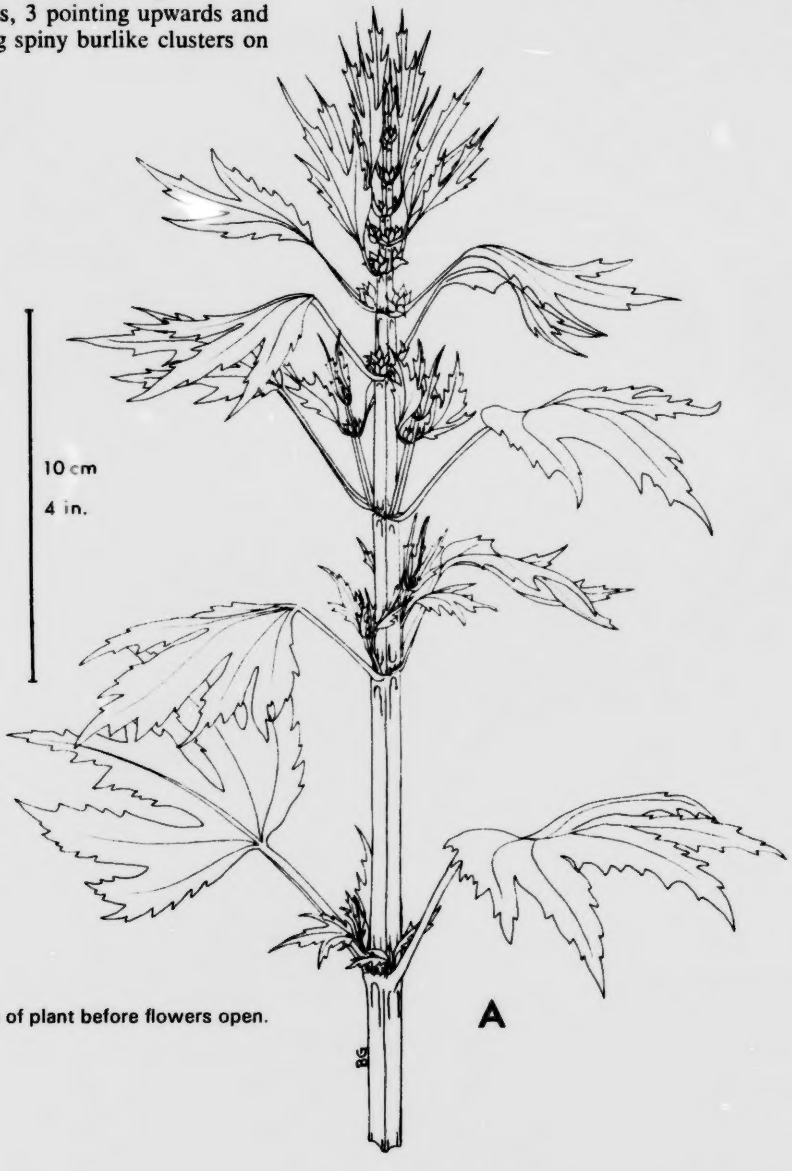


Figure 118. **Motherwort** A. Top of plant before flowers open. B. Mature spiny-tipped calyx.

# NIGHTSHADE or POTATO FAMILY (Solanaceae)

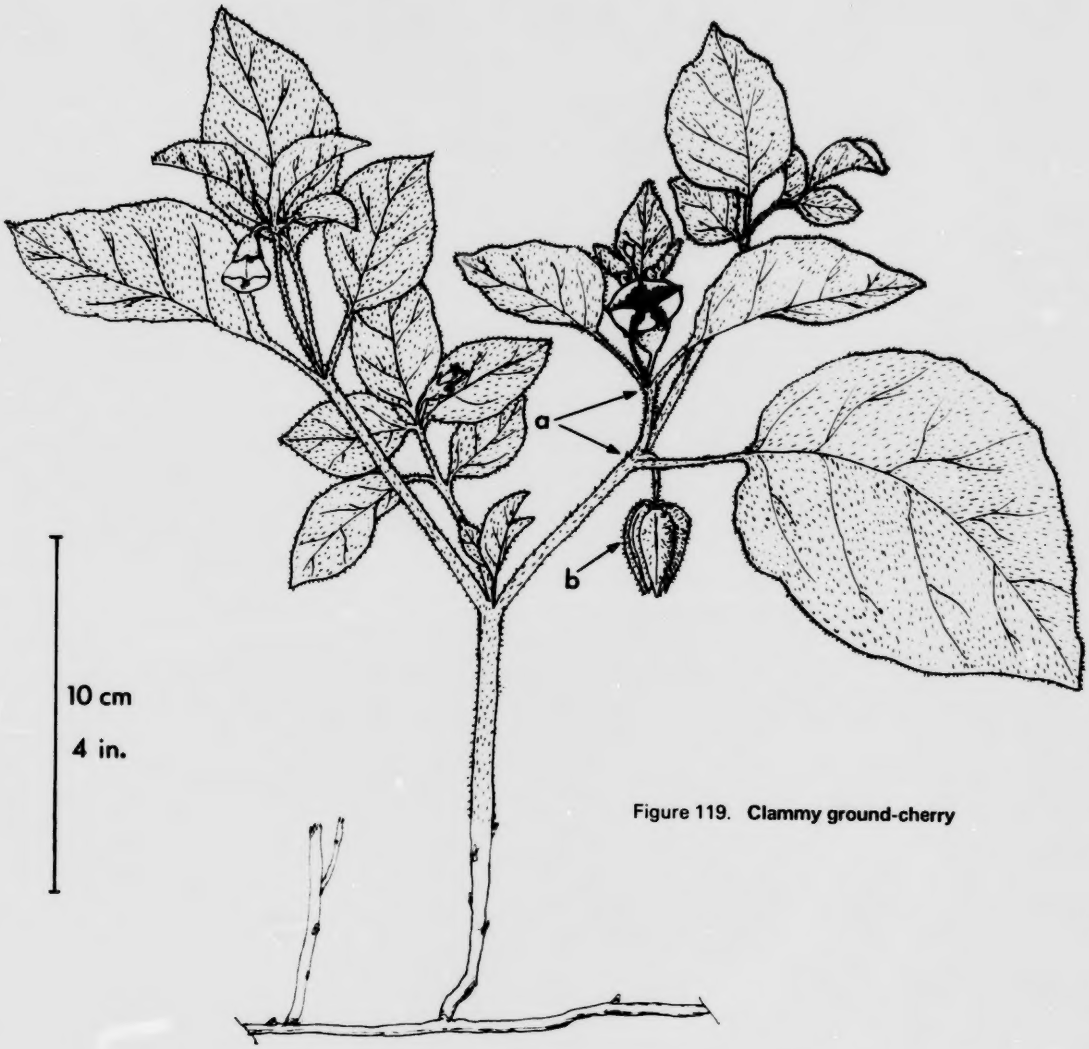


Figure 119. Clammy ground-cherry

**Clammy ground-cherry**, *Physalis heterophylla* Nees, (Figure 119) [coqueret hétérophylle] Perennial, reproducing by seed and by deeply penetrating and widely spreading roots. Stems erect, 20 – 90 cm (8 – 36 in.) high, branched in the upper part, often branched in 3's with a flower in the center; leaves alternate (1 per node), long-stalked, ovate to somewhat rounded or diamond shape in outline, margins smooth or shallowly and irregularly roundish toothed; stems and leaves covered with sticky hair; flowers borne singly in the angles where 2 or 3 stems and leaves come together (a), drooping on short stalks; calyx tubular with 5 short blunt lobes; petals united forming a trumpet-shaped corolla, mostly yellow with a dark purple center; after blossoming, the calyx expands and becomes bladder-like (b) enclosing a small, spherical, green berry which turns yellowish when ripe; the berry resembles a small potato and contains many small seeds. Flowers from June to September.

Clammy ground-cherry occurs in southern Ontario under dry open woodland, in pastures, cultivated fields, waste areas and roadsides, especially in well-drained coarse soils. It is distinguished by its very deep perennial root; the clammy texture of its sticky stem and leaves, the yellow and purplish flowers produced in the angles between 2 or more stems and leaves (a), and the bladder-like inflated calyx (b) containing a small greenish or yellowish berry.

**Smooth ground-cherry**, *Physalis virginiana* Mill. var. *subglabrata* (MacKenz. & Bush) U.T. Waterfall, (not illustrated) [coqueret glabre, *Physalis subglabrata* MacKenz. & Bush], very similar in habit and form to Clammy ground-cherry, but the whole plant is nearly or quite hairless and lacks the clammy texture. Smooth ground-cherry occurs in similar situations to those occupied by Clammy ground-cherry, especially in southwestern Ontario.

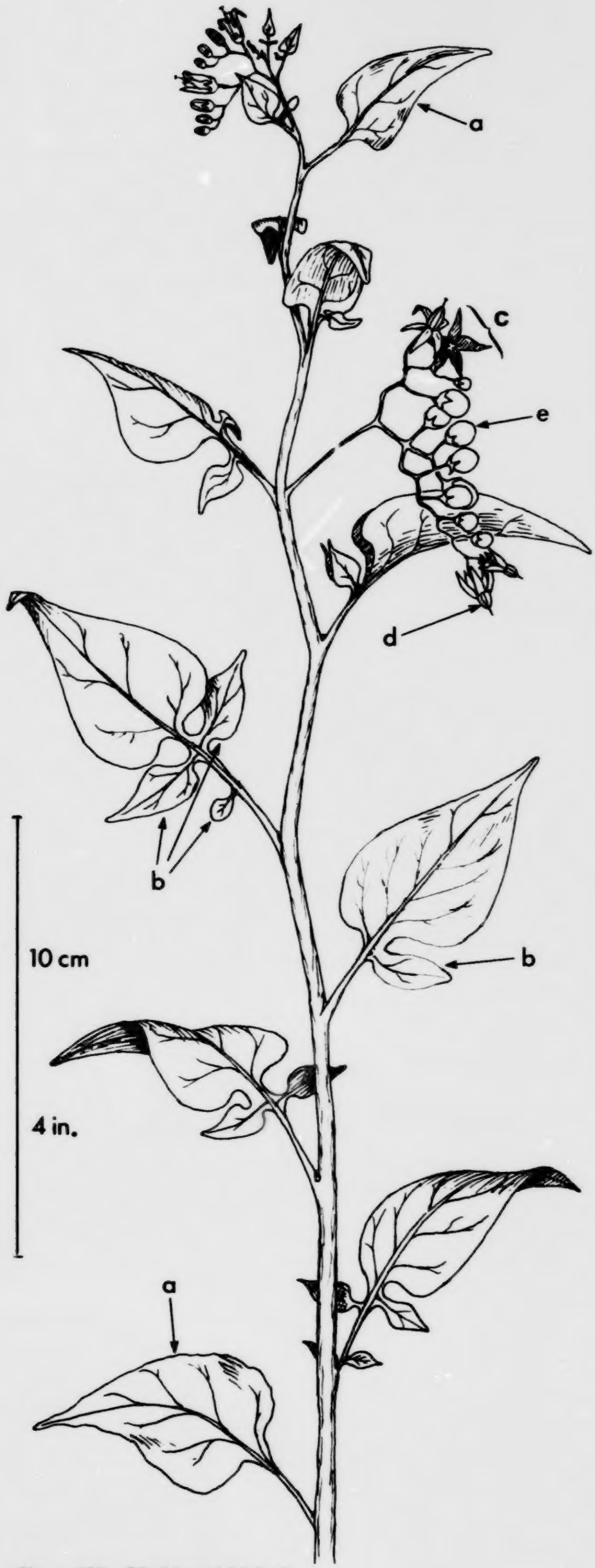


Figure 120. Climbing nightshade

**Climbing nightshade,** *Solanum dulcamara* (Figure 120, Plate 36) [morelle douce-amère, Bi nightshade, Bittersweet, Climbing bittersweet, Dea nightshade] Perennial, reproducing by seed and spreading underground rhizomes. Stems partially woo weak, erect or vine-like and climbing over fence li and other vegetation, 1 – 3 m (3 – 10 ft) long, usua dying back close to the ground each year but in mil areas or if protected by snow becoming thick and woo in the lower part, hairless or short-hairy, with leng wise-shredding, light gray bark; leaves alternate (1 p node), simple (a) or lobed with 1 or more lobes (b) ne the base giving them a mitten-like appearance; flowe in much-branched clusters; each flower star-shaped ( with a 5-pointed light blue to violet or rarely whi corolla, in the center of which is a slender pyramid of united bright yellow stamens (d); flowers followed b oblong green berries (e) 8 – 12 mm (⅓ – ½ in.) lon which turn bright red (Plate 00) and juicy when rip Flowers in June and July; berries ripening in Augu and often remaining on the stems into the winter. Stems roots, leaves and sometimes the green berries have disagreeable civet-cat odor when bruised.

Climbing nightshade occurs throughout Ontario i open woods, edges of fields, fence lines, roadsides an occasionally in hedges and gardens. It is distinguishe by its vine habit, shredding light gray bark on olde stems, usually mitten-shaped lobed leaves (b), cluster of blue-purple, star-shaped flowers (c), juicy red berrie (e), and strong disagreeable odor. Stems and leaves ar poisonous to livestock. The attractive, bright red berrie have a bitter and sweet flavor, and, although som people can apparently eat them without harm, childre have reputedly been poisoned by eating them.

**American nightshade,** *Solanum americanum* Mill. (Figure 121) [morelle d'Amerique, Black nightshade, Deadly nightshade, often mistaken as *Solanum nigrum* L.] Annual, reproducing only by seed. Stems erect, 5 – 100 cm (2 – 40 in.) high, usually much-branched in the upper part, mostly hairless; leaves alternate (1 per node), ovate or rhombic (diamond-shaped), pale green, soft, thin and nearly translucent; flowers small, usually 2 to 5 grouped together in a small umbel (flower stalks all from 1 point) (a) on a short stalk sticking out from the side of the stem (b) rather than from the axil of a leaf (angle between leaf and stem); calyx of 5 united sepals with 5 pointed lobes, small and not enlarging with the fruit (c); petals white or white tinged with purple, united into a star-shaped corolla with 5 sharp lobes resembling the flower of a potato but much smaller, about 9 – 15 mm (⅓ – ⅖ in.) diameter; the short anthers (d) about 1.3 – 2 mm (1/20 – 1/12 in.) long, united and forming a yellow column in the center of the flower; fruits are berries, always larger than the calyx, green at first but turning black and juicy when mature, 5 – 9 mm (⅕ – ⅓ in.) diameter, containing several, small, flat seeds and 4 to 8 small, hard, irregular stone-like crumbs. Flowers from June until late autumn.

American nightshade occurs throughout southern Ontario in open dry woods, edges of pastures, waste places, and in cultivated land, especially in row crops in the southwestern portion of the province. The berries of American nightshade are reputed to be poisonous and thus the plant is sometimes called "deadly nightshade", a name belonging to a different plant. Until more information is available about their palatability, it is advisable not to eat these attractive berries.

**Black nightshade,** *Solanum nigrum* L., (not illustrated) [morelle noire, Deadly nightshade, Garden huckleberry], very similar to American nightshade in habit, height and general appearance. Distinguished by its thicker, dark green or purplish-green leaves which are opaque to transmitted light, flowers about the same size but with larger anthers, these being 1.8 – 2.6 mm (1/15 – 1/10 in.) long, usually more flowers (5 to 10) in each cluster and these not in an umbel but in a short raceme (the flower stalks not all coming from 1 point), berries about the same size or half again larger and mostly without the hard, irregular stone-like crumbs. Although some strains of this species are cultivated under the name "Garden huckleberry", because of uncertainty of identification, it is not advisable to use the berries of any of these nightshades for human consumption. Black nightshade occurs as a weed in cultivated land in scattered localities in southern Ontario.

**Cupped nightshade,** *Solanum sarachoides* Sendt., (not illustrated) [morelle sarachoïde, Potatoweed], when young, resembling young plants of both American and Black nightshades but has smaller and thicker leaves tending towards gray-green. Older plants have spreading stems with shorter internodes but much-branched and very leafy; flowers at first resemble those of Black nightshade but after the corolla falls off, the calyx increases in size with the expanding green berry and at maturity is cupped around the lower ½ to ⅔ of it (much larger than (c) in Figure 121 A). Cupped nightshade occurs in a few scattered localities in southern Ontario in gardens and row crops, with the largest infestation probably being in the Holland Marsh area.

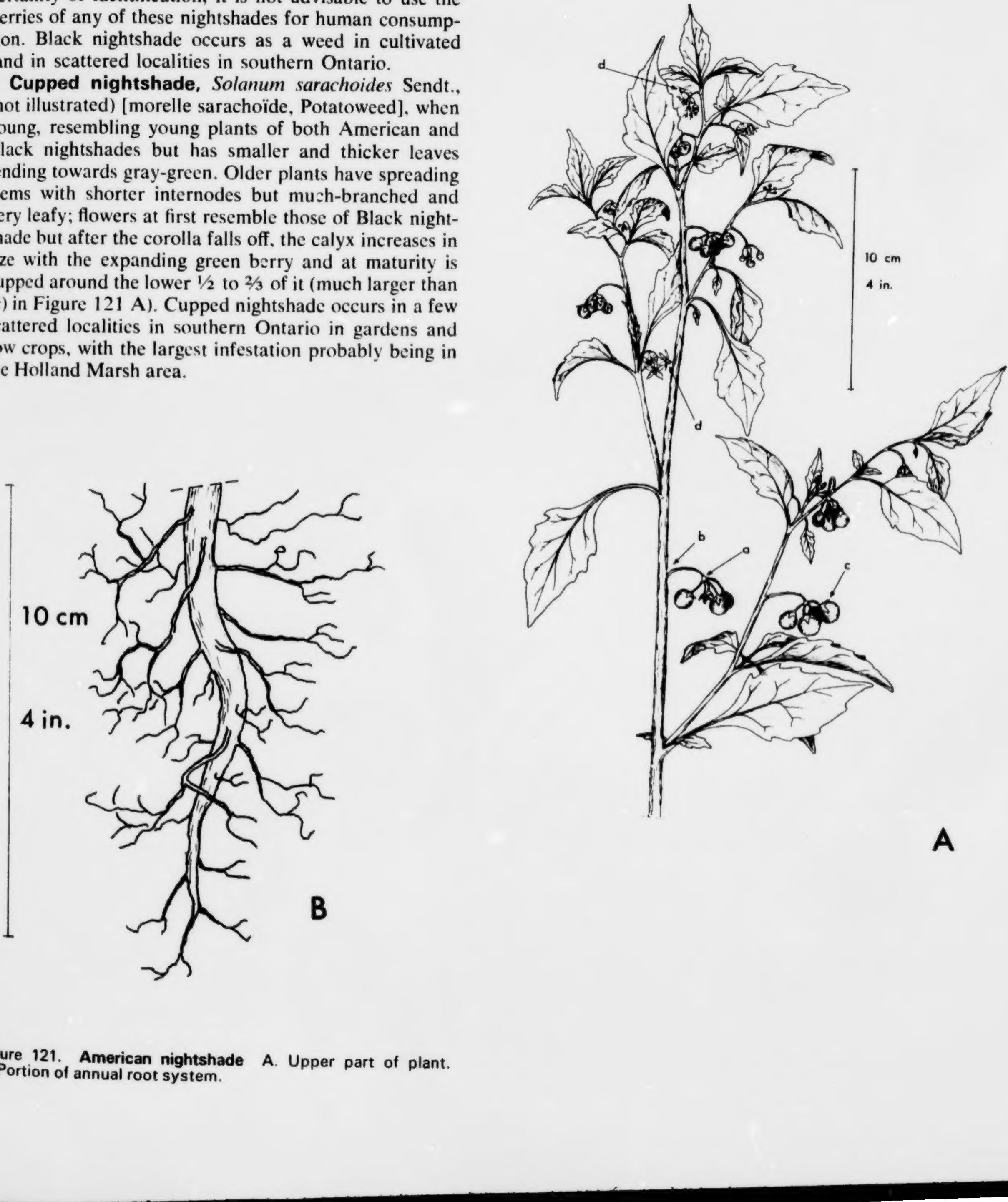
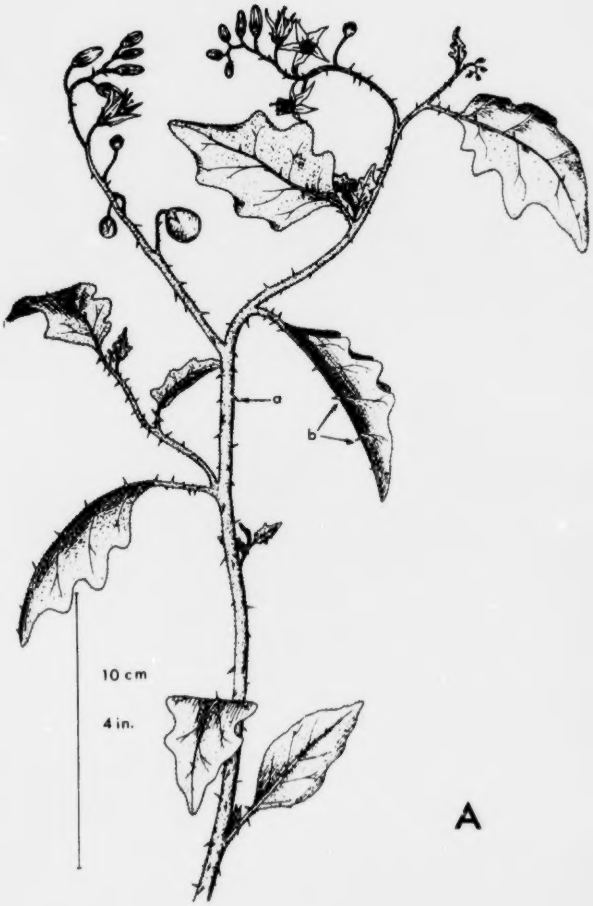


Figure 121. **American nightshade** A. Upper part of plant. B. Portion of annual root system.

**Horse-nettle**, *Solanum carolinense* L., (Figure 122) [morelle de la Caroline] Perennial, reproducing by seed and by underground rhizomes (B). Stems erect, 60 – 100 cm (24 – 40 in.) high, with a few branches near the top, covered with tiny, star-shaped hair having 1 point longer than the rest (visible only with magnification), and scattered, long, hard, sharp spines (a) often 5 mm (⅕ in.) long; leaves alternate (1 per node), elliptic in outline but shallowly to deeply lobed with 2 to 5 rounded or sharp-pointed lobes on each side, finely hairy on both surfaces with star-shaped hair plus several, long, hard spines (b), at least on the underside along the midrib and main veins; several flowers clustered in short racemes, corolla pale purplish to white, 1.5 – 2 cm (⅗ – ⅘ in.) across, with 5 stamens joined in a central column about 6 mm (¼ in.) long; berry smooth, yellow at maturity and about 1.5 cm (⅗ in.) diameter. Flowers from July until autumn.

Horse-nettle is found in scattered localities throughout southern Ontario, usually in sandy soils, in grainfields, pastureland, waste areas and occasionally in gardens. It is distinguished by its harshly spiny stems (a) and leaves (b), lobed leaves, large, white to purplish flowers, smooth yellow berries, and its perennial rhizomatous (B) habit resulting in dense stands.



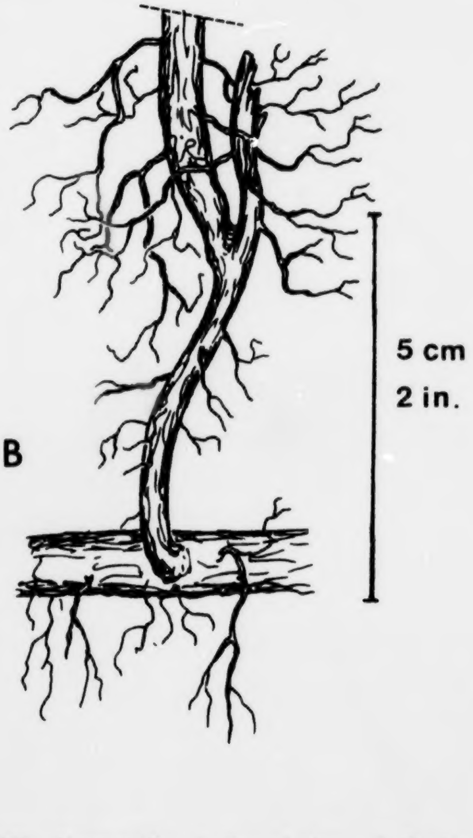
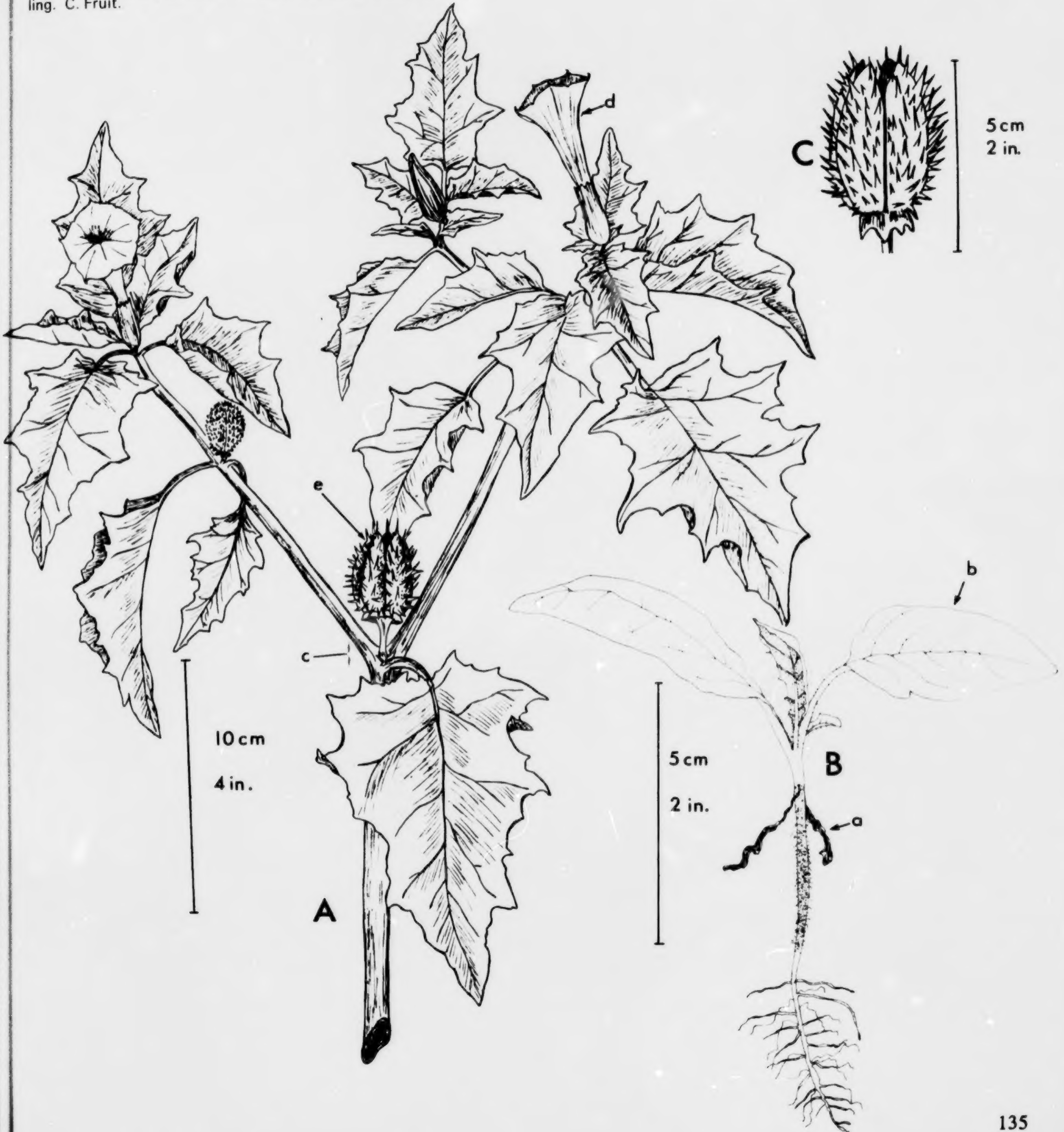


Figure 122. **Horse-nettle** A. Top of plant. B. Portion of horizontal rhizome producing new aboveground shoot.

**Jimsonweed**, *Datura stramonium* L., (Figure 123) [stramoine commune, Thornapple] Annual, reproducing only by seed. Stems stout, erect, 90 – 200 cm (3 – 6½ ft) high, usually much-branched in the upper part, smooth and hairless; cotyledons (seed leaves) long-oval, 2 – 4 cm (⅘ – 1½ in.) long, shriveling (a) but persisting on the developing seedling; first true leaves (b) ovate with pointed tips and few or no lobes; later leaves distinctly alternate (1 per node), usually somewhat coarsely and sharply toothed or lobed, 10 – 20 cm (4 – 8 in.) long and long-stalked; flowers and seedpods borne singly in the angles (c) between 2 or more stems and a leaf, short-stalked; calyx tubular or urn-shaped; corolla (d) white or light purple, very long tubular or trumpet-shaped, 7 – 10 cm (3 – 4 in.) long, the flared end with 5 points; seedpod (e) at first green and fleshy with sharp, soft spines, becoming (C) a large (2 – 5 cm, ⅘ – 2 in. across), dry, hard seedpod covered with very sharp, harsh spines and containing numerous black, flat, round seeds. Flowers from July to autumn. The whole plant has a sour repulsive odor and all parts of the plant are poisonous.

Jimsonweed occurs in the warmer parts of southern Ontario in cultivated fields and around farmyards. It is distinguished by its tall, stout, branched stem (like small trees), large leaves, large, white or purplish trumpet-shaped flowers (d), large spiny seedpod (e, C) and sour repulsive odor.

Figure 123. **Jimsonweed** A. Top of flowering plant. B. Seedling. C. Fruit.



# FIGWORT or SNAPDRAGON FAMILY (Scrophulariaceae)

**Common mullein,** *Verbascum thapsus* L., (Figure 124) [grande molène, Candelabra, Candlesticks, Devil's tobacco] Biennial, reproducing only by seed. First-year plant a rosette of large, gray, woolly leaves on a deep, thick taproot; tall erect stems the second year. Stem 1 – 2 m (3 – 6½ ft) high, stout, unbranched or with 1 or 2 branches near the top, somewhat winged by edges of leaves (a) which run down the stem below their nodes; stem and leaves densely woolly; rosette leaves many, often 30 cm (12 in.) long and 10 cm (4 in.) wide, oblong or broadest beyond the middle, narrowed towards the stalk, flowers in a very dense, compact, elongated, thick spike; petals 5, yellow, united into a saucer-shaped corolla 12 – 20 mm (½ – ⅘ in.) wide with 5 lobes (b), stamens with 3 small anthers and 2 long ones; seedpods nearly spherical, about 1 cm (⅖ in.) diameter but obscured by the mass of woolly bracts and sepals; seeds brownish, very small, about 0.7 mm (1/40 in.) long. Flowers from early July to September.

Common mullein is widespread throughout southern Ontario but rather rare in the northern part of the province, occurring usually in dry sandy or gravelly soils, along roadsides, waste places and poor pastures. It is distinguished by its densely white woolly leaves during the first year, almost resembling white felt insoles, its stiffly erect stem in the second year, tipped with yellow flowers (hence one local name, "Candelabra"), the leaf margins (a) continuing down the stem as narrow wings, its very dense, thick, woolly spike with yellowish flowers (b) and round seedpods and the erect, dry, brownish stalks which may remain standing for one or two years.

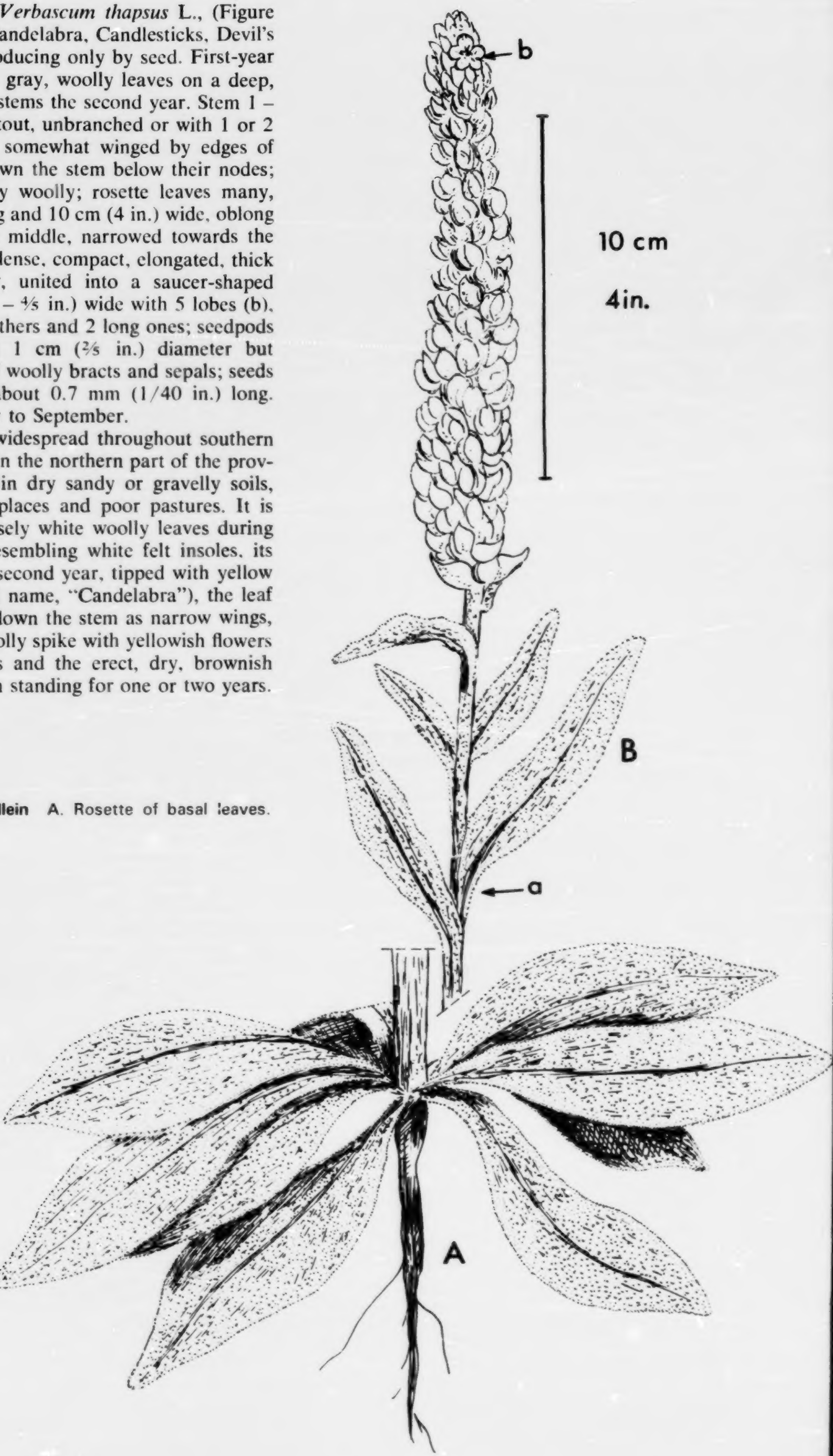


Figure 124. **Common mullein** A. Rosette of basal leaves. B. Top of flowering stem.

**Moth mullein,** *Verbascum blattaria* L., (Figure 125) [molène blattaire] Biennial, reproducing only by seed. Similar in habit to Common mullein but shorter, thinner and not white woolly; stems 75 – 150 cm (30 – 60 in.) high, slender, lower part usually hairless, upper part rough or slightly sticky with short gland-tipped hair; rosette leaves of the first year up to 20 cm (8 in.) long, oblong, narrowed to the base, irregularly shallowly or deeply toothed or deeply lobed; stem leaves in the second year similar to those of the rosette but smaller and shorter, the upper ones stalkless with a broad base and somewhat clasping (a) the stem; flowers in an elongated, loose raceme with distinct slender flower stalks 1 – 2.5 cm (⅖ – 1 in.) long; petals 5, yellowish or whitish with a purplish base, united into a saucer-shaped corolla 2 – 2.5 cm (⅘ – 1 in.) across; seedpods nearly spherical, about 8 mm (⅓ in.) diameter and containing numerous small brownish seeds. Flowers from June to August.

Moth mullein occurs in scattered localities in southern Ontario on dry sandy, gravelly soils along roadsides, in waste places and open pastureland. It is distinguished by its rosette of irregularly toothed, hairless leaves during the first year, and in the second year by its stiffly erect stem, upper leaves stalkless, somewhat triangular, broad based and somewhat clasping (a) the stem but the stem not winged; the numerous but not crowded flowers, yellowish to whitish with purple bases, on distinct stalks, and the round seedpods.

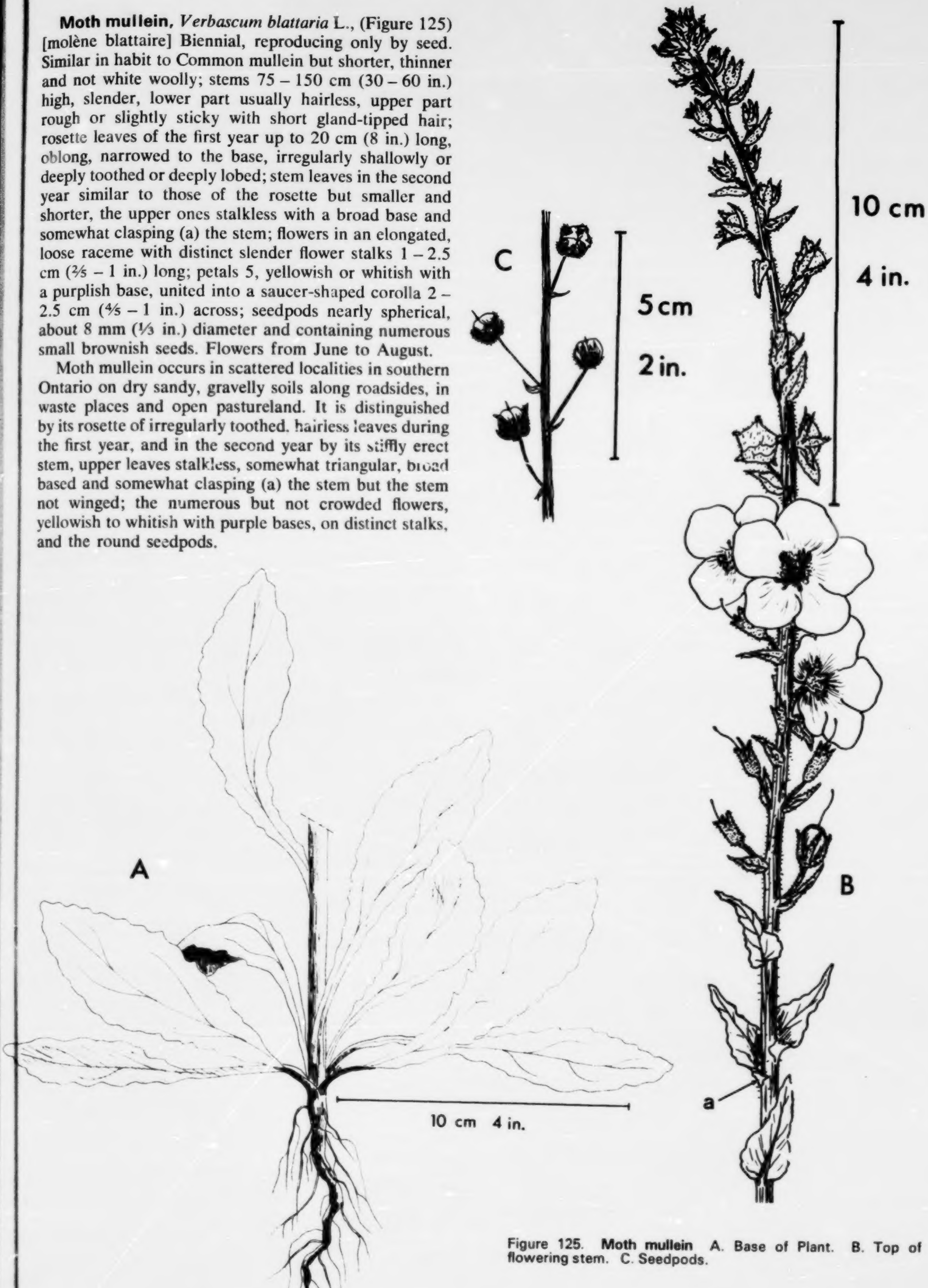


Figure 125. **Moth mullein** A. Base of Plant. B. Top of flowering stem. C. Seedpods.

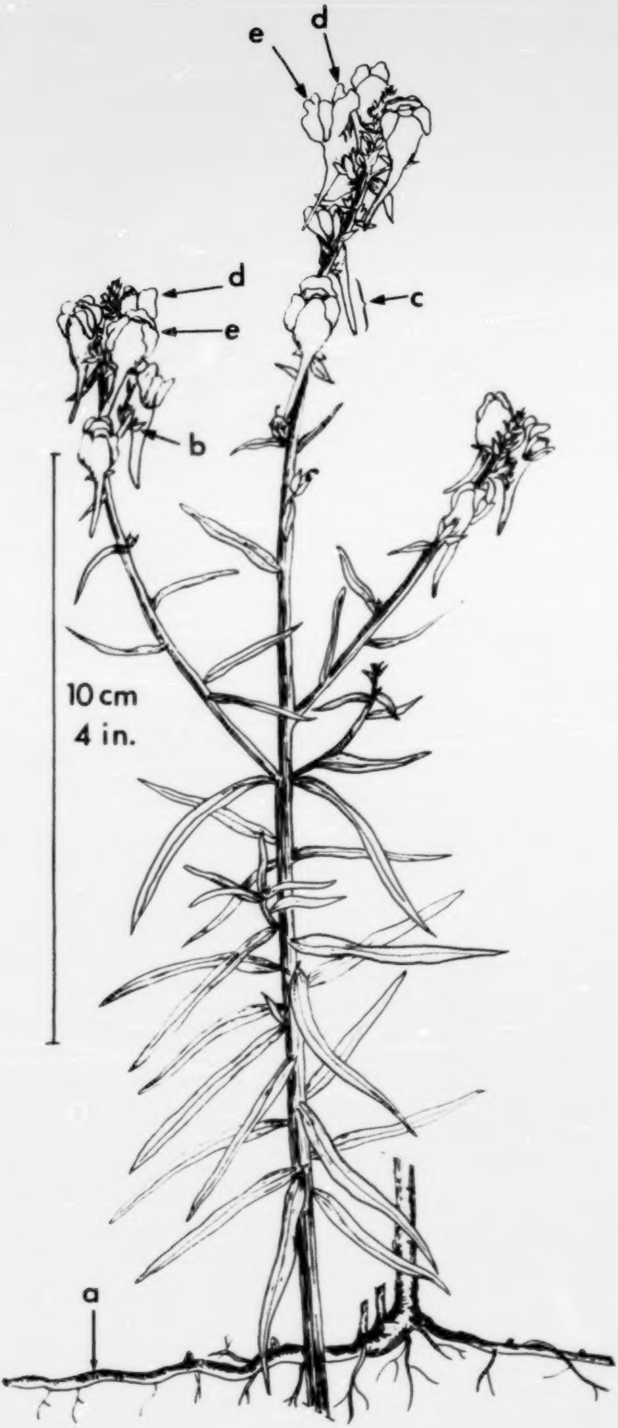


Figure 126. **Toadflax**

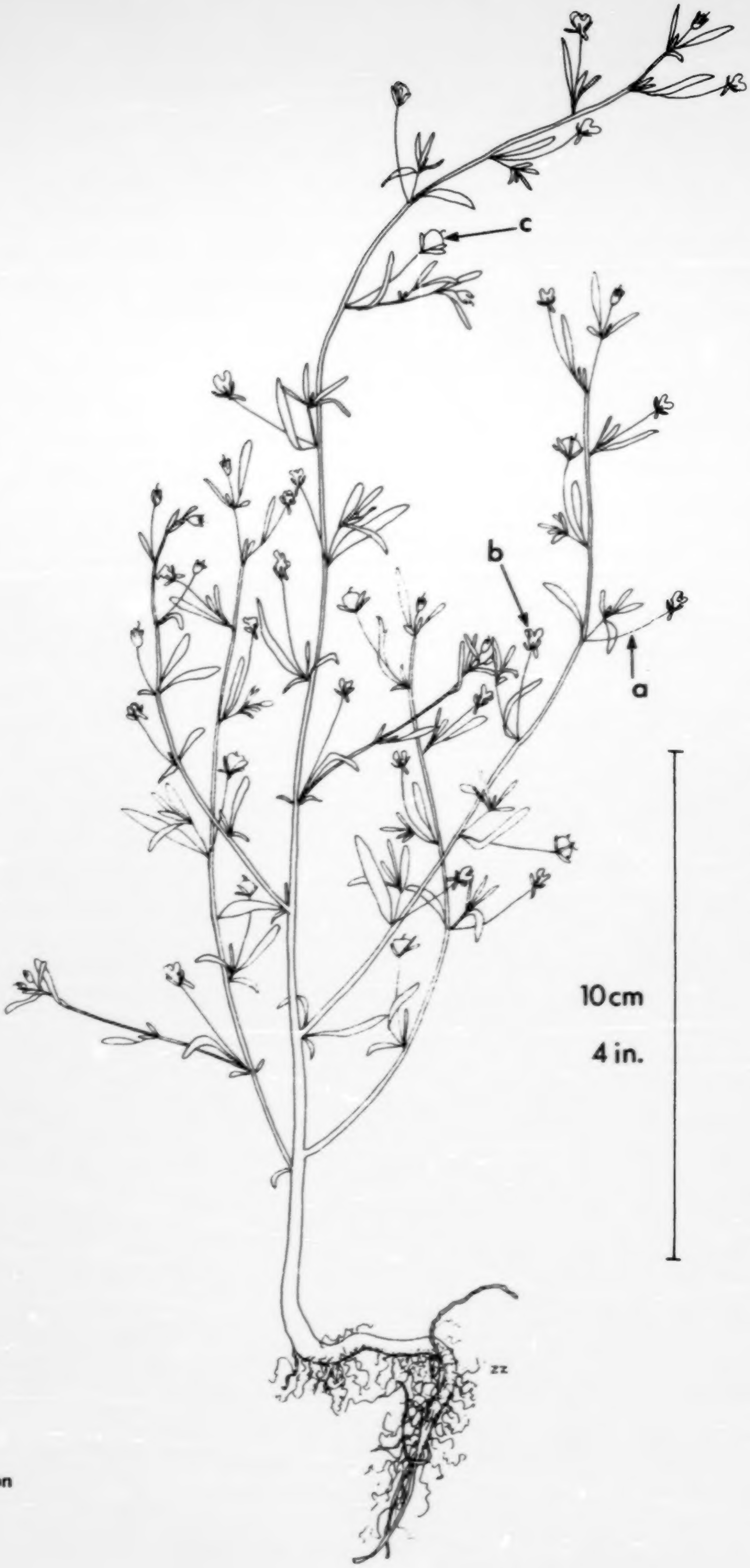
**Toadflax,** *Linaria vulgaris* Mill., (Figure 126) [linaire vulgaire, Butter-and-eggs, Common toadflax, Yellow toadflax, Wild snapdragon] Perennial, reproducing by seed and by extensively creeping roots (a) which produce new shoots and form very dense patches. Stems erect, 20 – 90 cm (8 – 36 in.) high, usually branched in the upper part, smooth and hairless; leaves alternate (1 per node) but often so numerous and crowded they appear opposite (2 per node), or whorled (3 or more per node), very narrow; flowers in racemes at ends of stems and branches, each flower short-stalked; sepals (b) 5, narrow; corolla 2 – 3 cm (⅘ – 1⅕ in.) long, of 5 united petals, yellow with an orange spot on the lower lip, very irregular with a long spur (c) at the lower end and 2-lipped at the top, the upper lip with 2 small lobes (d), the lower lip with 3 larger lobes (e), the flower resembling the cultivated snapdragon in shape; seedpods egg-shaped, containing many dark brown or black, flat, winged seeds. Flowers from June to autumn.

Toadflax is widely distributed throughout Ontario occurring in many habitats including roadsides, fence lines, waste places, pastures, edges of woods, and cultivated fields. It is distinguished by its perennial spreading root system; its short, smooth stems with numerous, alternate, smooth, very narrow leaves with watery juice (contrasts with Leafy spurge and Cypress spurge) and its bright yellow and orange snapdragon-like flowers, the lips of which will open if the sides of the flower are gently squeezed between thumb and finger. The seedpods of Toadflax are often very warty in appearance due to an insect which lives inside eating the developing seeds.

**Dalmatian toadflax,** *Linaria dalmatica* (L.) Mill., (not illustrated) [linaire à feuilles larges, Broad-leaved toadflax, Wild snapdragon], has flowers and seedpods very similar to Toadflax but stems usually taller, more branched, and leaves broader and often clasping the stem with rounded bases. Dalmatian toadflax is also a perennial reproducing by seed and underground roots but stands are usually not as dense as in Toadflax. In late autumn it usually produces numerous, very leafy horizontal stems around the base of each plant, the leaves ovate to nearly round, clasping, very closely spaced, and often remaining green or purplish-green throughout the winter. Dalmatian toadflax occurs throughout Ontario in old gardens, cemeteries, along roadsides, in waste places, and sandy pastures.

**Dwarf snapdragon,** *Chaenorrhinum minus* L. Lange, (Figure 127) [chénorhinum mineur, Dwarf toadflax, Small toadflax, *Linaria minor* L.] Annual, reproducing only by seed. Stems erect, 10 – 30 cm (4 – 12 in.) high, usually much-branched throughout, glandular-hairy; leaves alternate (1 per node), sometimes in tufts along the stem, short and very narrow; flower stalks slender (a), 1 – 2 cm (⅖ – ⅘ in.) long, from leaf axils throughout the plant; flowers (b) resembling Toadflax in shape but much smaller (6 – 8 mm, ¼ – ⅓ in. long), and light blue to purplish with a yellow spot; seedpods (c) nearly spherical, about 5 mm (⅕ in.) diameter. Flowers from June to September.

Dwarf snapdragon occurs throughout Ontario usually in cinders and gravel along railway rights-of-way but occasionally in other waste places, cultivated fields and gardens. It is distinguished by its small, erect, much-branched, somewhat sticky-hairy stems with short, narrow leaves often in tufts, and very small, light blue to purplish snapdragon-like flowers (b).

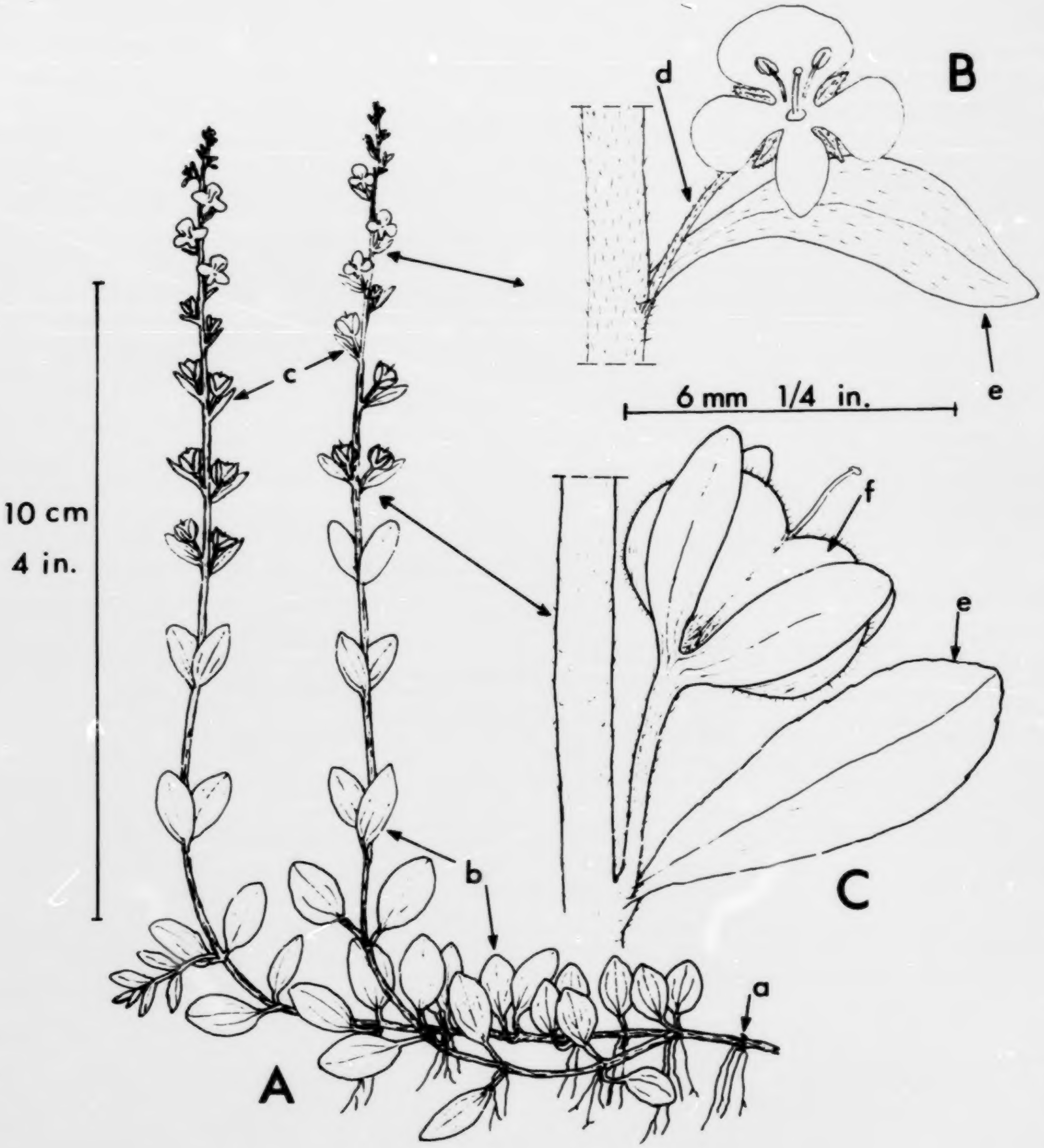

c
b
a
10cm
4 in.
zz

igure 127. **Dwarf snapdragon**

**Thyme-leaved speedwell,** *Veronica serpyllifolia* L., (Figure 128) [véronique à feuilles de serpolet, Veronica] Perennial, reproducing by seed and by spreading underground rhizomes and rooting stems. Plants tufted with spreading branches which soon curve upwards into erect stems, or with horizontal stems rooting at nodes (a) touching the ground and producing short erect branches, or occasionally just single erect stems from underground rhizomes; stems 10 – 30 cm (4 – 12 in.) high, somewhat fleshy, very finely hairy; leaves (b) opposite (2 per node) on horizontal stems and lower parts of erect stems, oval to roundish or broadly ovate, lacking teeth or with very fine teeth, stalkless, with 3 to 5 main veins arising from the base of the leaf, the side veins curving in towards the tip; leaves (c) alternate (1 per node) on upper parts of the stems, smaller than the lower opposite leaves and each with a flower in its axil; flower stalk (d) usually shorter than its leafy bract (e); sepals 4, small; corolla flat with 4 lobes, pale bluish-white with blue lines or bright blue; stamens 2; seedpods (f) flat, appearing soon after the blossom falls, deeply notched at the tip, appearing 2-lobed, 4 – 8 mm (⅙ – ⅓ in.) wide, broader than long. Flowers from late spring until late autumn.

Thyme-leaved speedwell occurs throughout Ontario in waste places, pastures, roadsides, meadows and lawns. There are at least eight different kinds of speedwell in Ontario and identification may be difficult. Thyme-leaved speedwell is distinguished by its perennial habit, lower leaves opposite, somewhat roundish and lacking teeth or with very fine teeth, its short-stalked (d) flowers with white or bluish 4-lobed corolla, seedpod notched and its stalk usually shorter than the leafy bract (e) just below it.

Figure 128. **Thyme-leaved speedwell** A. Plant. B. Flower. C. Seedpod.



**Purslane speedwell**, *Veronica peregrina* L., (Figure 129) [véronique voyageuse, Neckweed, Veronica] Annual, reproducing only by seed. Stems erect or much-branched near the base and becoming erect, smooth or with fine, slightly sticky hair; stems and leaves with a somewhat fleshy texture (hence "purslane" in the English name); lower and middle leaves (a) opposite (2 per node), oblong or somewhat linear, smooth or irregularly toothed, lower ones short-stalked, middle and upper ones stalkless; upper leaves (b) alternate (1 per node), smaller and narrower; each with a flower (c) in its axil; flower stalks extremely short; corolla flat, 4-lobed, 2 mm (1/12 in.) across, white or whitish, seedpods (d, B) flat, heart-shaped with the notch at the top; each leafy bract usually much longer than its flower or seedpod. Flowers from early May to July, and occasionally again in autumn.

Purslane speedwell occurs throughout Ontario but is most common in the southern portion, in gardens, orchards, lawns, waste places, roadsides, railways, stony areas and occasionally in greenhouses. It is distinguished by its somewhat fleshy stem and leaves, lower leaves (a) opposite and narrow, upper ones (b) alternate, smaller, with tiny flowers (c) followed by small heart-shaped seedpods (d).

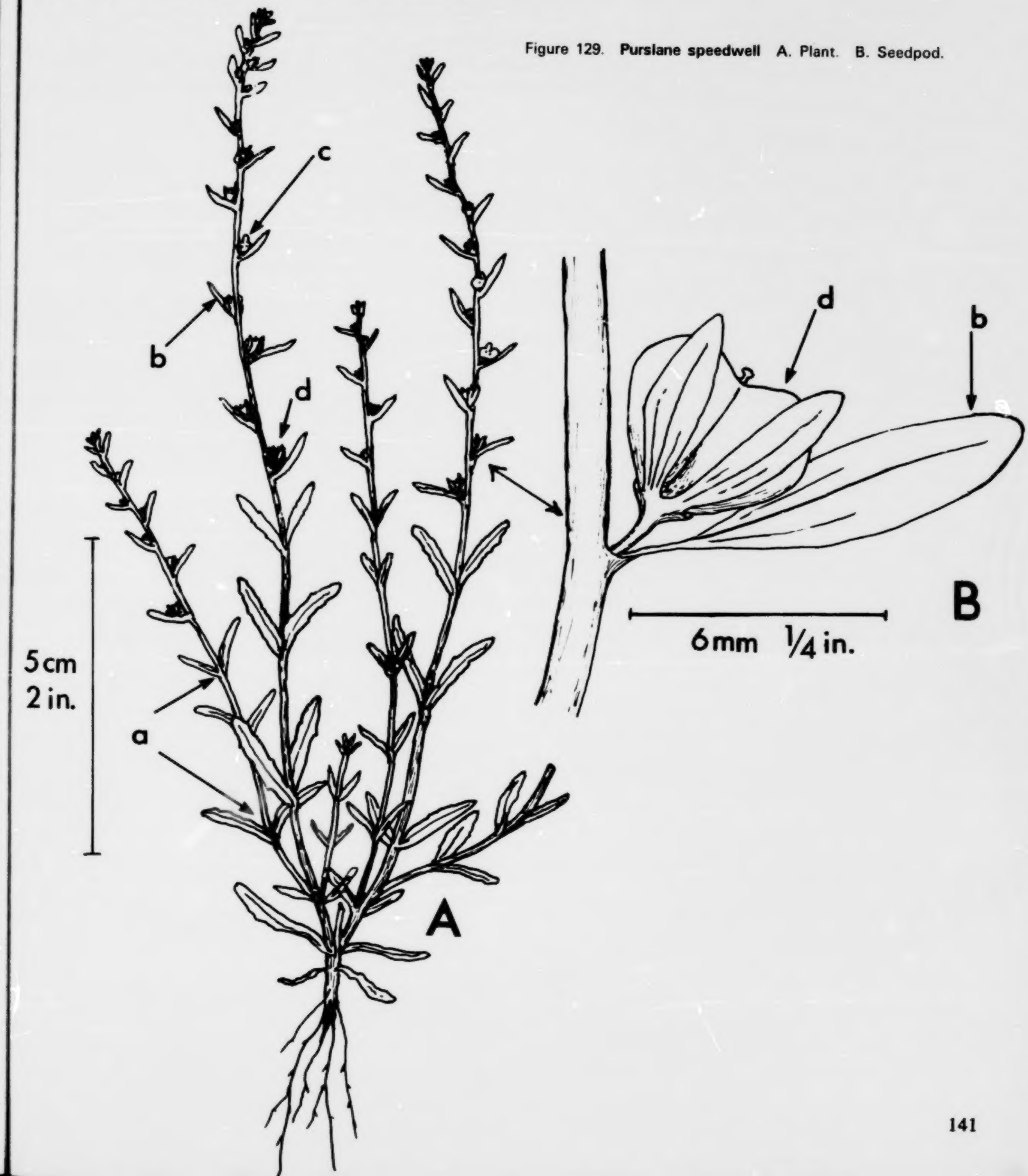


Figure 129. **Purslane speedwell** A. Plant. B. Seedpod.

**Corn speedwell**, *Veronica arvensis* L., (Figure 130) [véronique des champs, Veronica] Annual or possibly winter annual, reproducing only by seed. Stems erect, or spreading from the base and becoming erect, 5 – 30 cm (2 – 12 in.) long, somewhat hairy; lower and middle leaves (a) opposite (2 per node), lowermost pairs with short stalks but the middle ones stalkless, ovate or elliptic, palmately veined (with 3 or more veins fanning out from the base), hairy on both surfaces, margins with slightly rounded teeth; upper leaves (b) alternate (1 per node), smaller, narrower, without teeth, each with a flower in its axil; flowers (c) on very short stalks; sepals 4, small; corolla blue-violet, flat, 2 – 2.5 mm (1/12 – 1/10 in.) wide with 4 lobes and 2 tiny stamens; seedpods (d, B) rounded heart-shaped with a deep notch at the top. Flowers in late May and June and again in autumn.

Corn speedwell occurs in southern Ontario in pastures, waste places, roadsides, lawns and cultivated fields. It is distinguished by its annual or winter annual habit, somewhat rounded, toothed leaves, tiny blue-violet flowers (c) and its almost stalkless, rounded, heart-shaped seedpods (d).

**Bird's-eye speedwell**, *Veronica persica* Poir., (Figure 131) [véronique de Perse, Bird's-eye, Veronica] Annual, reproducing only by seed. Similar to Corn speedwell but stems longer (10 – 40 cm, 4 – 16 in.), weakly upright or often lying on the ground and rooting from nodes touching the soil; lower leaves (a) opposite (2 per node), short-stalked, rounded to ovate, coarsely toothed; upper leaves (b) similar to the lower ones but alternate (1 per node), stalkless, each with a long-stalked (c) flower (B) in its axil; calyx 4-lobed, 6 – 8 mm (¼ – ⅓ in.) long; corolla blue, 8 – 11 mm (⅓ – ½ in.) across, flat, 4-lobed; stamens 2; seedpods (d, C) flat, broadly heart-shaped, the lobes pointing outwards with a shallow notch, and a long thin style (e) persisting in it. Flowers and seeds from May to autumn.

Bird's-eye speedwell occurs throughout Ontario in lawns, gardens, cultivated fields and waste places. It is distinguished by its rather coarse habit of growth, large roundish leaves on the upper as well as lower parts of the plant, long-stalked (c) larger blue flowers (B) and its flat, broadly heart-shaped seedpods (d) with spreading lobes and persistent, long style (e). In the fruiting stage, it is sometimes confused with Shepherd's-purse, but is clearly distinct by having each long flower stalk from the axil of a rounded leafy bract (C) and the set of 4 sepals (f) remaining around the base of each seedpod; both bracts and sepals being absent from seedpods of Shepherd's-purse.

**Field speedwell**, *Veronica agrestis* L., (not illustrated) [véronique rustique, Veronica], also an annual, is very similar to Bird's-eye speedwell but is generally smaller; its blue flowers not over 8 mm (⅓ in.) across, on stalks of medium length which rarely exceed 12 mm (½ in.) long when the seedpods develop. Field speedwell occurs in scattered localities throughout Ontario in lawns, gardens and waste places.

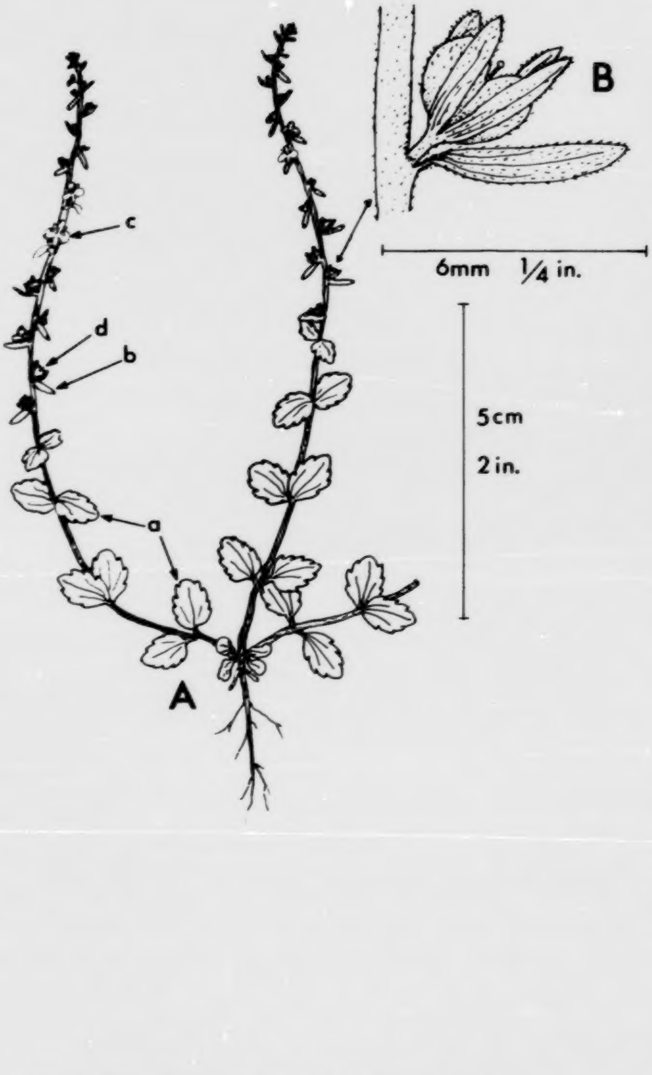


Figure 130. **Corn speedwell** A. Plant. B. Seedpod.

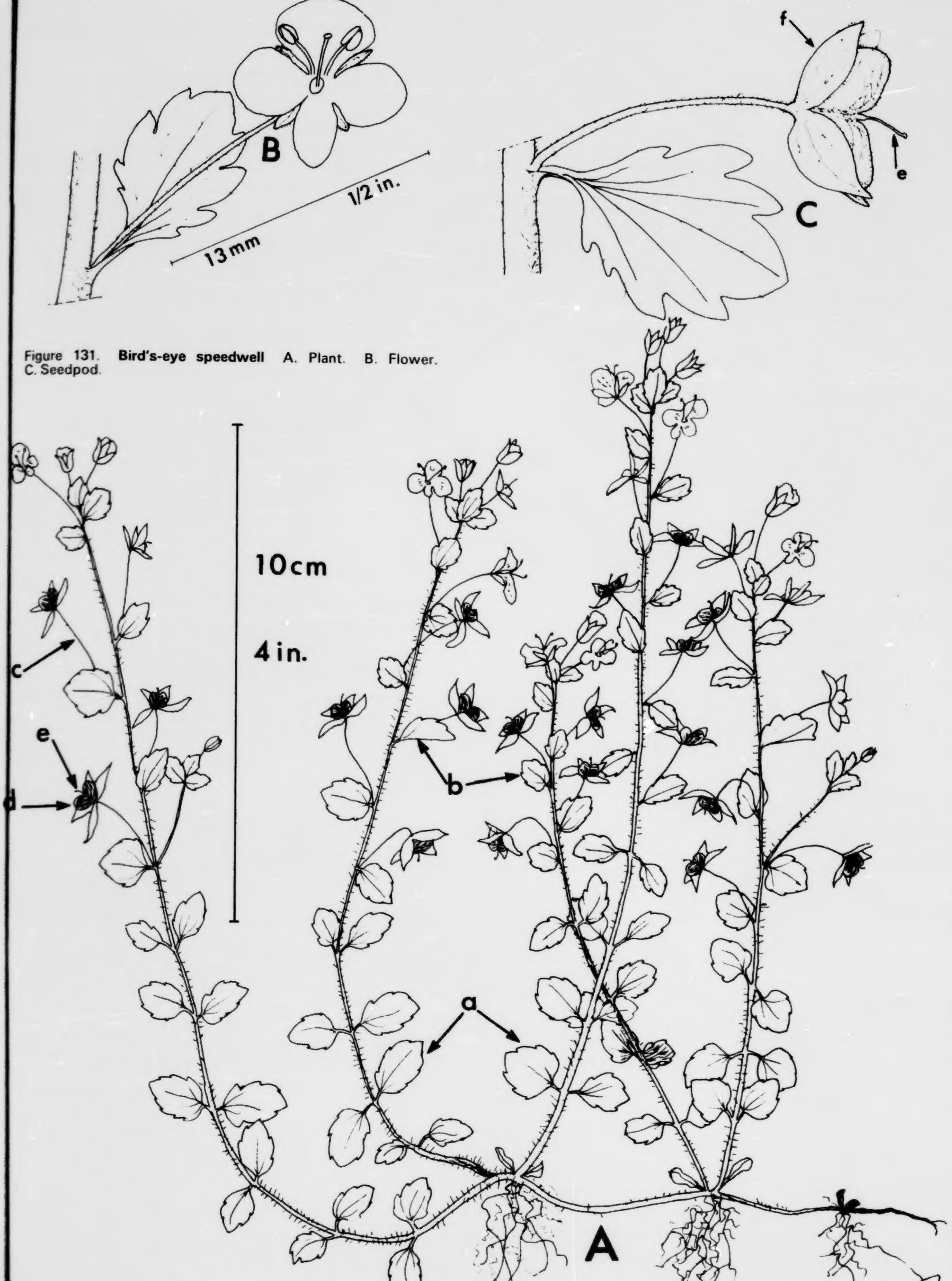
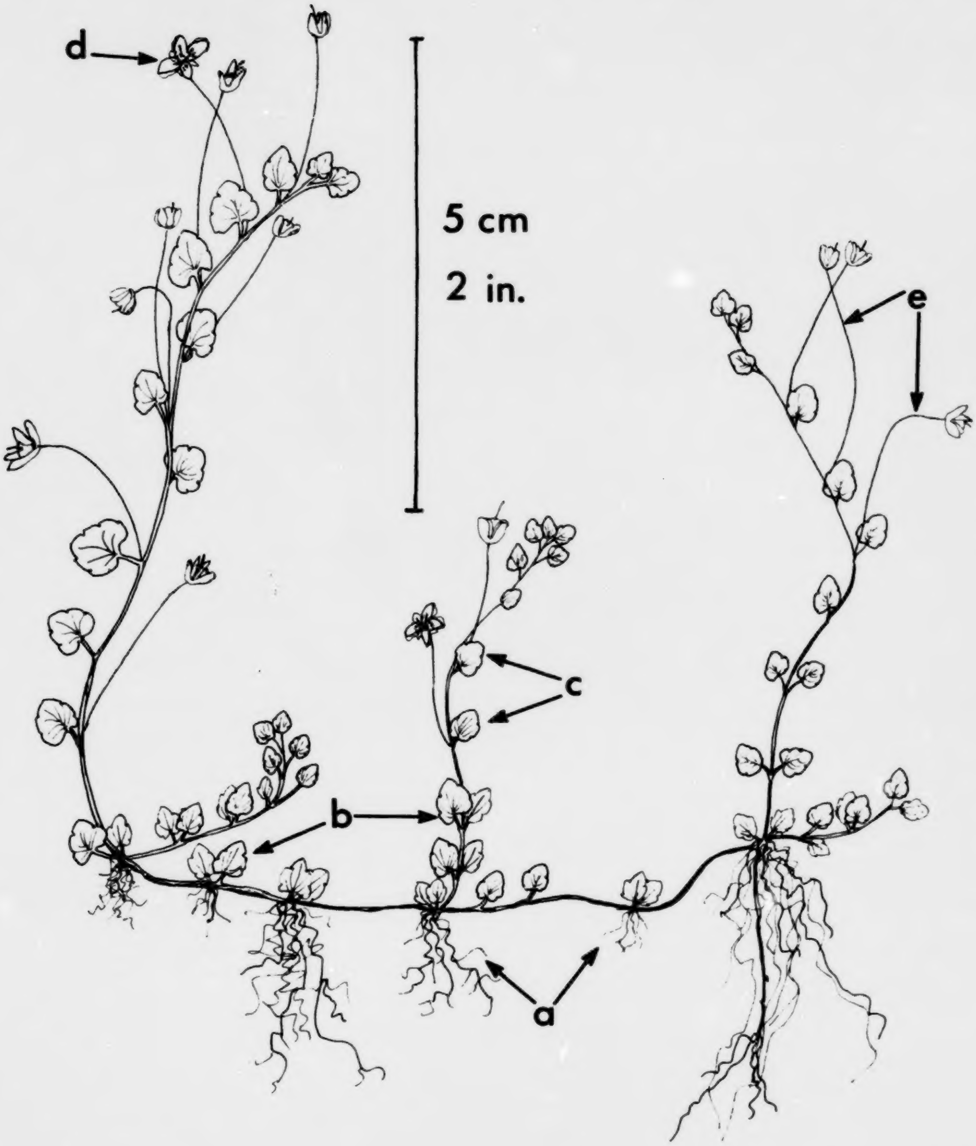

B
1/2 in.
13 mm
f
e
C
10cm
4 in.
c
e
d
b
a
A

Figure 131. **Bird's-eye speedwell** A. Plant. B. Flower. C. Seedpod.

**Creeping speedwell**, *Veronica filiformis* Sm., (Figure 132) [véronique filiforme, Veronica] Perennial, reproducing by seed and by slender underground rhizomes. Plant small and delicate; stems slender, creeping, often rooting at the nodes (a); some branches horizontal and others erect and bearing flowers; leaves small, mostly less than 10 mm (⅖ in.) across, short-stalked, with a few rounded teeth, opposite (2 per node) (b) on horizontal stems and lower parts of upright stems, but alternate (1 per node) (c) towards the ends of upright stems; flowers (d) bluish-white, 4-lobed, about 8 mm (⅓ in.) across on very slender threadlike stalks (e) 2 – 3 cm (about 1 in.) long. Flowers in May and June but rarely produces seedpods.

Creeping speedwell occurs in a few localities in southern Ontario in lawns and edges of woods. It is distinguished by its perennial habit, very slender stems, small leaves and small bluish-white flowers (d) on very slender long stalks (e).

Figure 132. **Creeping speedwell**



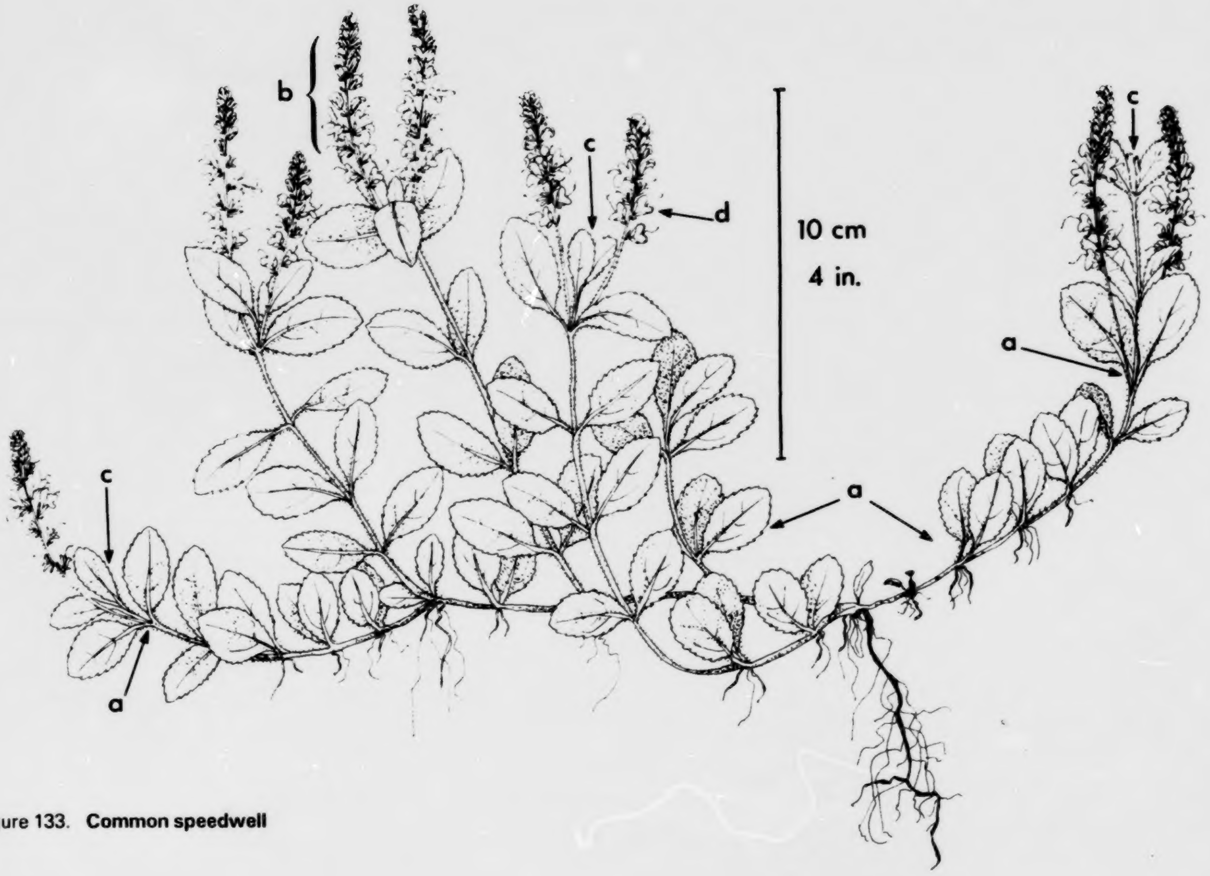


Figure 133. **Common speedwell**

**Common speedwell,** *Veronica officinalis* L., (Figure 133) [véronique officinale, Gypsyweed, Veronica] Perennial, reproducing by seed and by spreading rhizomes. Stems more or less horizontal, much-branched, rooting at the nodes, often forming densely matted patches with short erect branches, hairy; leaves opposite (2 per node) (a), elliptic, up to 5 cm (2 in.) long, finely toothed, somewhat rough-hairy on both surfaces; short, slender, dense spikes (b) of light blue flowers arising from axils of these opposite leaves (a) but never at the ends of main stems or erect stem branches (c); corolla 4 – 8 mm (1/6 – 1/3 in.) across; small, flat, seedpods (d) broadly heart-shaped, about 4 mm (1/6 in.) across, resembling those of Purslane speedwell (as in Figure 129 B, d). Flowers from May to July.

Common speedwell occurs throughout Ontario in pastures, meadows, open woodlots, waste areas and occasionally lawns and cultivated fields. It is distinguished by its densely matted habit of growth, coarse stems, large rough-hairy leaves and short axillary spikes (b) of dense, bright blue flowers.

**Germander speedwell,** *Veronica chamaedrys* L., (not illustrated) [véronique germandrée, Bird's-eye], another rhizomatous perennial with prostrate stems, but it does not grow as dense as Common speedwell. Its leaves are opposite (2 per node), ovate, nearly stalkless with broad bases, coarse rounded teeth, softly hairy on both surfaces; flowers in loose, open racemes from axils of opposite leaves but never at the ends of stems; flowers blue, 8 – 12 mm (1/3 – 1/2 in.) across, on very slender stalks 5 – 10 mm (1/5 – 2/5 in.) long. Flowers from May to August. Germander speedwell occurs in a few areas of southern Ontario as a weed in lawns, pastures, and waste areas. It is readily distinguished by its broadly triangular leaves with coarse teeth and its loosely elongated racemes of blue flowers on very slender stalks.

# PLANTAIN FAMILY (Plantaginaceae)

**Broad-leaved plantain**, *Plantago major* L., (Figure 134) [plantain majeur, Common plantain, Doorweed, Dooryard plantain, Plantain, Whiteman's-foot] Perennial, reproducing only by seed. Plant stemless, except for the leafless flowering stalks; leaves all in a basal rosette, oval or elliptic, 5 – 30 cm (2 – 12 in.) long, the blade about as long as its thick green stalk, smooth or somewhat rough-hairy, with 3 to several prominent veins radiating from the leafstalk towards the tip, margins smooth or irregularly toothed; root system thick and fibrous; flowers in compact spikes on erect, leafless stalks from among the basal leaves; each spike (a) about the size and shape of a lead pencil but consisting of many, tiny, stalkless, greenish flowers giving it a coarsely granular texture; each flower about 2 – 3 mm (1/12 – 1/8 in.) across, with 4 sepals, 4 petals, 2 stamens and 1 pistil; the egg-shaped seedpod (b) developing beneath the withering flower, this splitting apart with a circular fracture around its middle so that the top part drops off and releases the 5 to 16 dark brown or nearly black angular seeds, each about 1 mm (1/25 in.) long. Flowers and sets seed from spring until late autumn.

Broad-leaved plantain is very common in all but the most remote unsettled areas of Ontario occurring in cultivated land, pastures, meadows, waste places, roadsides, lawns and gardens. It is distinguished by the rosette of dull green, oval leaves with thick green stalks, its elongated spikes (a) of tiny green flowers each followed by a small egg-shaped pod (b) with usually more than 5 tiny dark brown or nearly black seeds.

**Rugel's plantain**, *Plantago rugelii* Dcne., (not illustrated) [plantain de Rugel, Pale plantain], very similar to Broad-leaved plantain, differing mainly by having reddish or purplish bases on the leafstalks, cylindrical seedpods which contain fewer seeds and its seeds somewhat larger (up to 2.5 mm, 1/10 in. long). Rugel's plantain is a native plant in moist depressions and river valleys throughout southern Ontario, but it has spread to lawns, gardens, pastures, roadsides and waste areas.

**Hoary plantain**, *Plantago media* L., (not illustrated) [plantain moyen], also similar to Broad-leaved plantain, being distinguished by densely short-hairy leaves which are thick but soft in texture and usually lie flat on the ground, its short dense spikes of tiny flowers raised high above the leaves on long, slender, bare stems, the flowers with long slender stamens having whitish or purplish anthers, and seedpods containing only 2 to 4 seeds each. Hoary plantain occurs in southern Ontario in lawns and waste places but is not common.

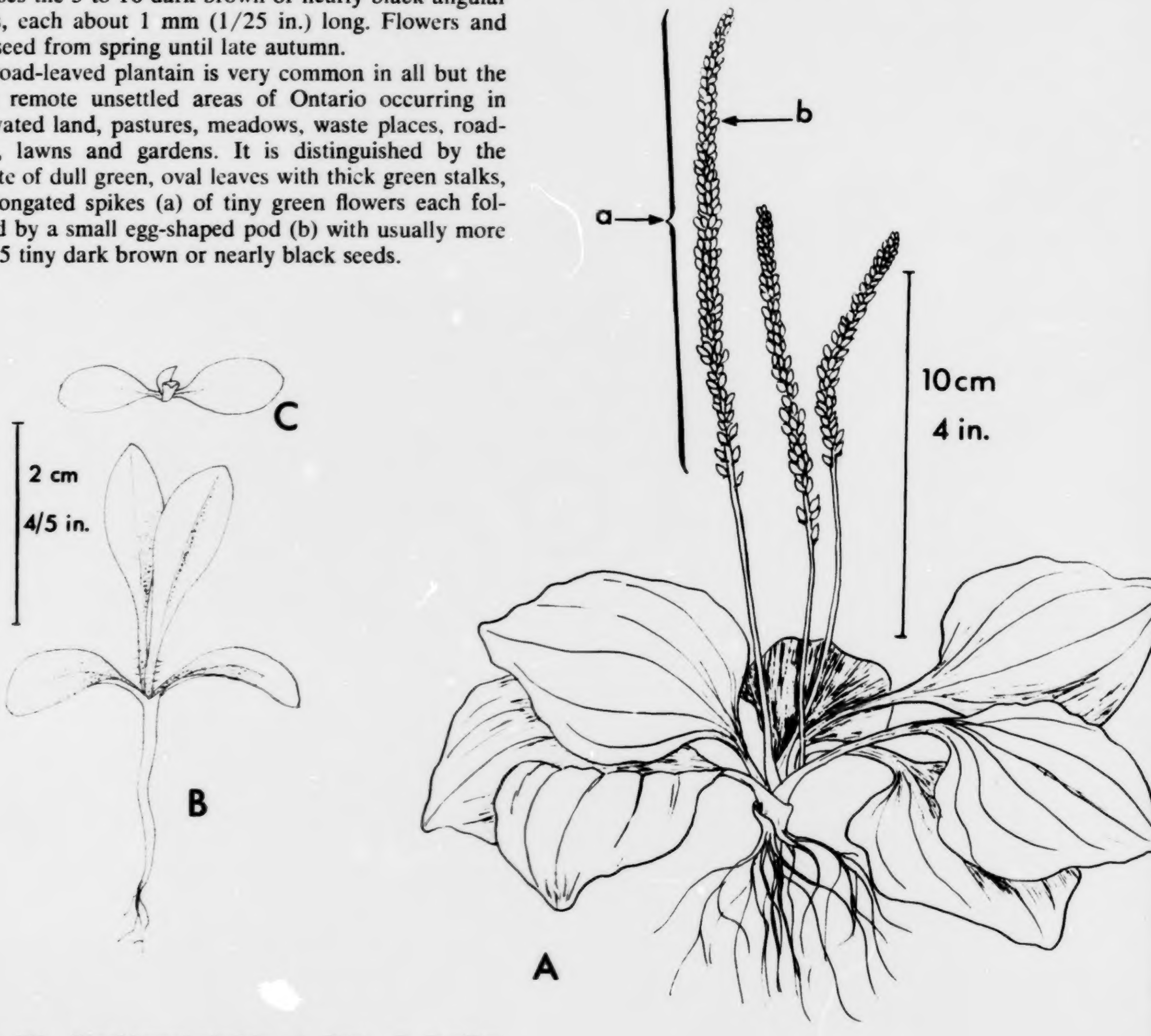


Figure 134. **Broad-leaved plantain** A. Plant. B. Seedling, side view. C. Younger seedling, top view.

**Narrow-leaved plantain**, *Plantago lanceolata* L., (Figure 135, Plate 39) [plantain lancéolé, Buckhorn plantain, English plantain, Ribgrass] Perennial, reproducing only by seed. Very similar to Broad-leaved plantain in general habit of growth; differing mainly in having long, narrow leaves which have very prominent, almost parallel veins or ribs which run the length of the leaf, sometimes the blade being strongly folded lengthwise along each rib, and the very short, compact, somewhat oval spike (a) of tiny flowers at the ends of long, thin, leafless stems; at flowering, the spike surrounded by a halo of anthers (b) at the ends of long thin stamens protruding from the flowers; seedpod contains only 1 or 2 seeds, each about 3 mm (⅛ in.) long. Flowers from spring until late autumn and the plant may act as an annual or perennial. It occurs throughout Ontario in pastures, meadows, roadsides, cultivated fields, lawns and gardens.

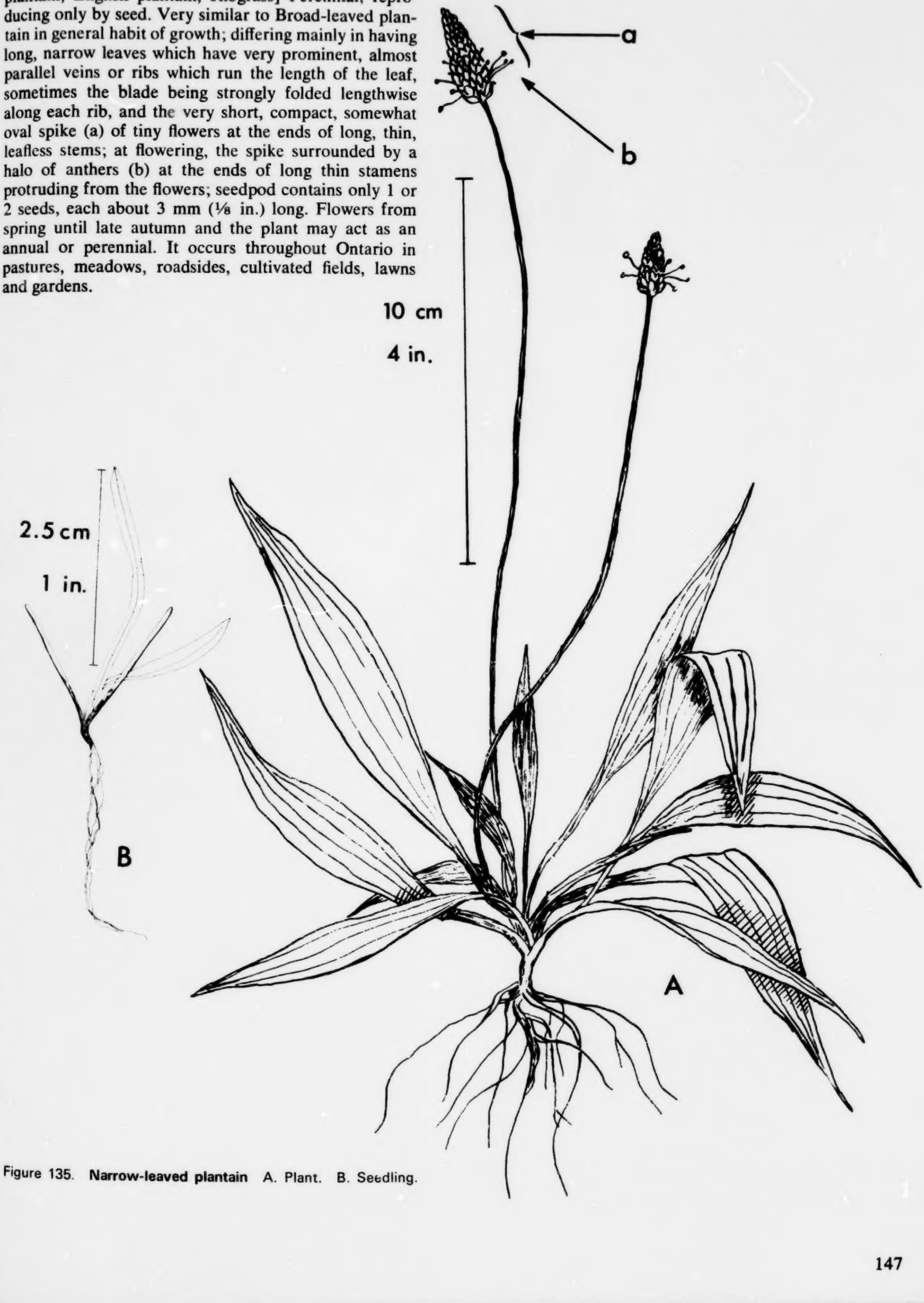


Figure 135. **Narrow-leaved plantain** A. Plant. B. Seedling.

# MADDER FAMILY (Rubiaceae)

**Smooth bedstraw**, *Galium mollugo* L., (Figure 136) [gaillet mollugine] Perennial, reproducing by seed and by spreading underground rhizomes. Stems slender, soft, smooth, much-branched, at first erect but soon matted or spreading over nearby vegetation; leaves in whorls of 6 to 8 per node (a), narrowly oblong or wider towards the end, 1 – 3 cm (⅖ – 1¼ in.) long, bright green; flowers in loosely branching clusters at the ends of stems and on short branches throughout the plant; each flower with 4 tiny white petals (b), 2 – 4 mm (1/12 – 1/6 in.) across, sitting on top of a small spherical ovary which develops into the fruit ("seed"). Flowers from June to August.

Smooth bedstraw occurs throughout Ontario in pastures, meadows, river flats, roadsides and occasionally in lawns and gardens. There are several other kinds of perennial white-flowered bedstraws in Ontario but they are rarely considered weedy. Smooth bedstraw is distinguished by having usually 6 or 8 leaves per node on the smooth stems and branches.

**Cleavers**, *Galium aparine* L., (not illustrated) [gaillet grateron], similar to Smooth bedstraw but is distinguished by being an annual and has very harsh, downward-pointing prickle-like hair or barbs along the angles of the stems, these catching or clinging to clothing, skin and fur. It occurs in pastures, waste places, edges of woods, roadsides and occasionally in cultivated fields throughout the province.

**Yellow bedstraw**, *Galium verum* L., (not illustrated) [gaillet vrai, Our Lady's bedstraw], resembling Smooth bedstraw and is a perennial with 6 or 8 leaves in each whorl, but its leaves are very narrow and the flowers are bright yellow. The plant has a pleasant aroma, and was widely used as a packing for mattresses (hence "bedstraw"). It occurs in scattered localities throughout Ontario in pastures, roadsides and waste places.

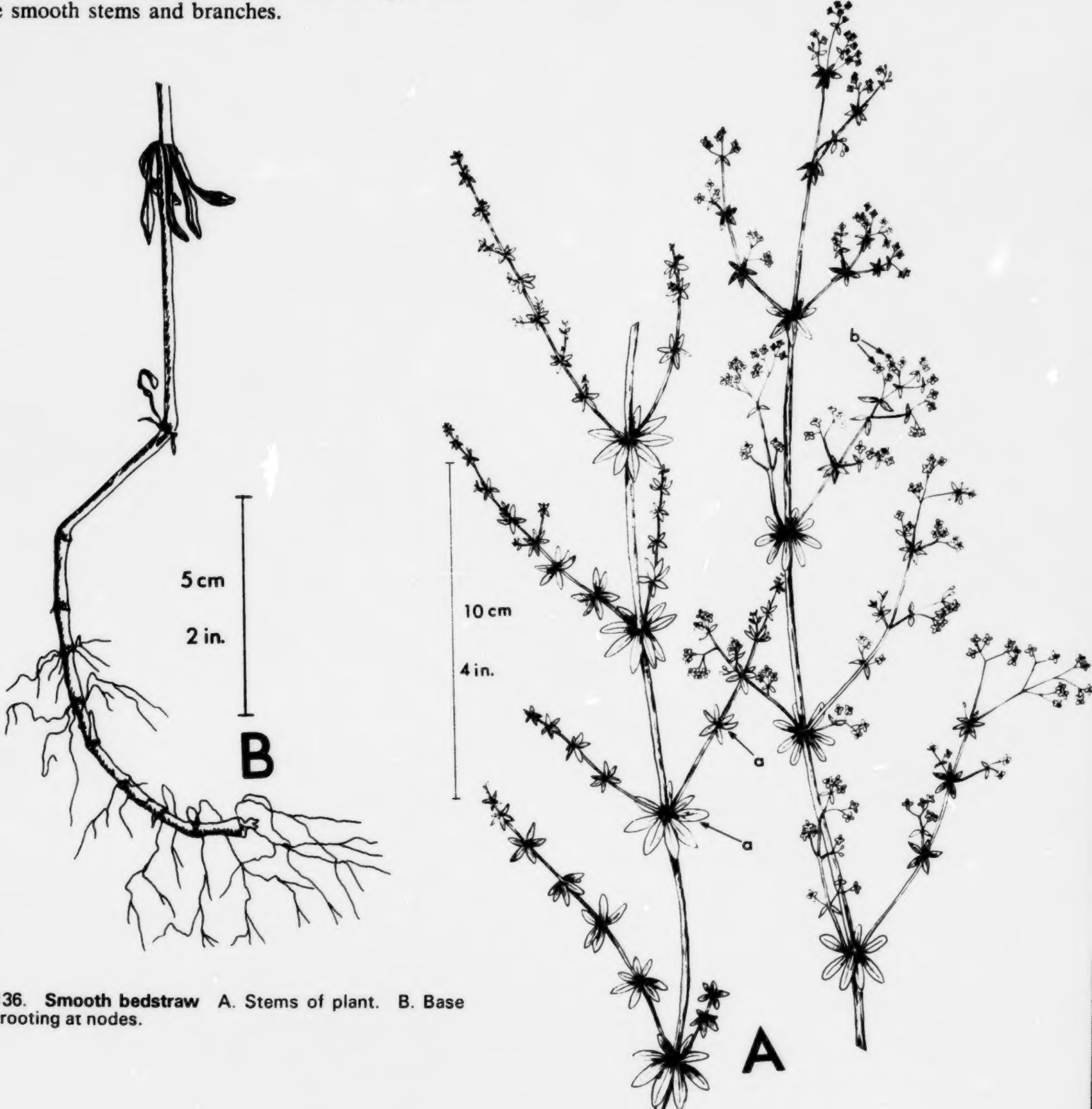


Figure 136. **Smooth bedstraw** A. Stems of plant. B. Base of stem rooting at nodes.

# TEASEL FAMILY (Dipsacaceae)

**Teasel**, *Dipsacus sylvestris* Huds., (Figure 137) [cardère des bois] Perennial, reproducing only by seed. First-year plants becoming large rosettes, the leaves long, tapering towards both ends, somewhat toothed along the margins and with scattered, stout prickles (a) on the upper surface, especially along the midrib; stems of second-year plants erect, to 2 m (6½ ft) high, usually branched near the top, very prickly; stem leaves similar to rosette leaves but smaller, stalkless, broader towards the stem and tapering towards the tip, opposite (2 per node), their bases occasionally united and forming a cup around the stem which may hold a quantity of rainwater; flowers in egg-shaped, dense, spiny heads (B) with long, slender, stiff, prickly bracts (b) below the head and numerous, short, stiff bristles (c) within the head; individual flowers small, corolla tubular, 10 – 15 mm (⅖ – ⅗ in.) long, whitish below, pale to deep purplish towards the 4-lobed end, 3 – 4 mm (⅛ – ⅙ in.) across, with usually 4 stamens protruding from the corolla tube; seeds 4-angled, ridged, light brown, about 5 mm (⅕ in.) long. Flowers from July to September.

Teasel occurs throughout southern Ontario in waste areas, meadows, roadsides, and sometimes in cultivated land, usually in moist areas and on coarse soils. It is distinguished by its large rosette of shiny green leaves with stout prickles (a) on the upper surface, prickly stems with pairs of opposite leaves often having cup-shaped bases, and egg-shaped heads (B) of flowers at the ends of stems and branches.

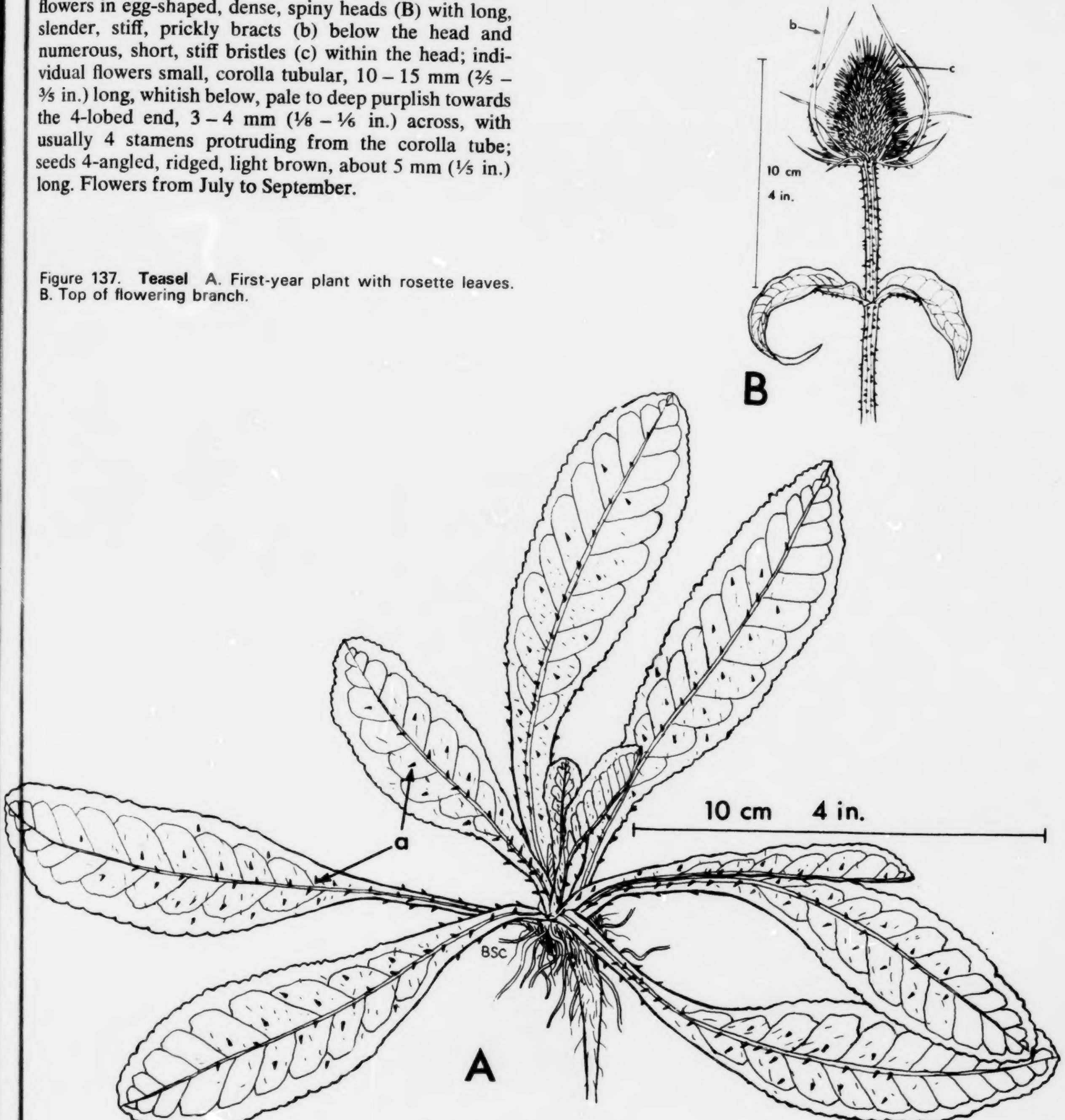


Figure 137. **Teasel** A. First-year plant with rosette leaves. B. Top of flowering branch.

# GOURD or MELON FAMILY (Cucurbitaceae)

**Wild cucumber**, *Echinocystis lobata* (Michx.) T. & G., (Figure 138) [cocombre grimpant] Annual, reproducing only by seed. Stems vine-like, much-branched, climbing over fences, shrubs and trees to a height of 5 m (17 ft) or higher, soft and somewhat fleshy, lengthwise grooved, hairless or sometimes hairy at the nodes; leaves bright green, long-stalked, usually 5-lobed, resembling the cultivated cucumber, the margin of each lobe smooth or with scattered slender teeth; each leaf usually paired with a long, curly, branching tendril (a) on the opposite side of the stem at the same node (B); flowers with sexes separate, male flowers (b) in long, showy, branching panicles from the axil of each leaf, their petals small, white or greenish-white with prominent yellow anthers but with no pistil or ovary; female flowers (c) short-stalked, in the axil of the tendril opposite the base of each cluster of male flowers, with no stamens but with a small, spherical, weakly spiny ovary below the 6 small, yellow-green petals; fruit (C) fleshy, oblong 2.5 – 5 cm (1 – 2 in.) long, weakly prickly, after maturity drying and opening at the end, releasing 4 large, flat, brown to blackish mottled seeds; the dry empty seedpod hanging from the branch as a small spiny mesh bag. Flowers from July to late autumn.

Wild cucumber occurs throughout southern Ontario in river bottoms, meadows, edges of woods, fence lines and waste areas, usually in low moist areas, but occasionally in drier sites as well. It is distinguished by its vine habit, 3-branched tendrils opposite the bright green leaves, long clusters of male flowers (B), single female flowers and large, weakly spiny 4-seeded fruit (C).

**Goldencreeper**, *Thladiantha dubia* Bunge, (not illustrated) [thladianthe douteuse, Thladianthe], resembling young plants of Wild cucumber. It is a perennial reproducing almost exclusively from fleshy, underground, potato-like tubers. Its stems are slender and somewhat twining, 1 – 2 m (40 – 80 in.) long but mostly climbing over other plants by means of tendrils; leaves alternate (1 per node), short-stalked, broadly heart-shaped, about 7.5 – 15 cm (3 – 6 in.) long, with a deep, rounded, U-shaped base, smooth margins, a slender, stretched-out tip, and rough-hairy on both surfaces; flowers showy, bright yellow, 15 – 25 mm (⅗ – 1 in.) across, in shape somewhat resembling male flowers of the cultivated cucumber. Canadian plants have only male (pollen-producing) flowers; the female (seed-producing) plant apparently not introduced. Flowers from July to September.

Goldencreeper occurs in scattered localities in southern Ontario, persisting in old gardens where it was introduced as an ornamental, spreading through lawns, gardens, along roadsides, in waste places and into cultivated fields. It is distinguished by its rough-hairy, heart-shaped leaves with deep, rounded, U-shaped bases and stretched-out tips, climbing by tendrils, bright yellow flowers, and reproducing only by very persistent, widely spreading, fleshy, underground, potato-like tubers which make it extremely difficult to eradicate.

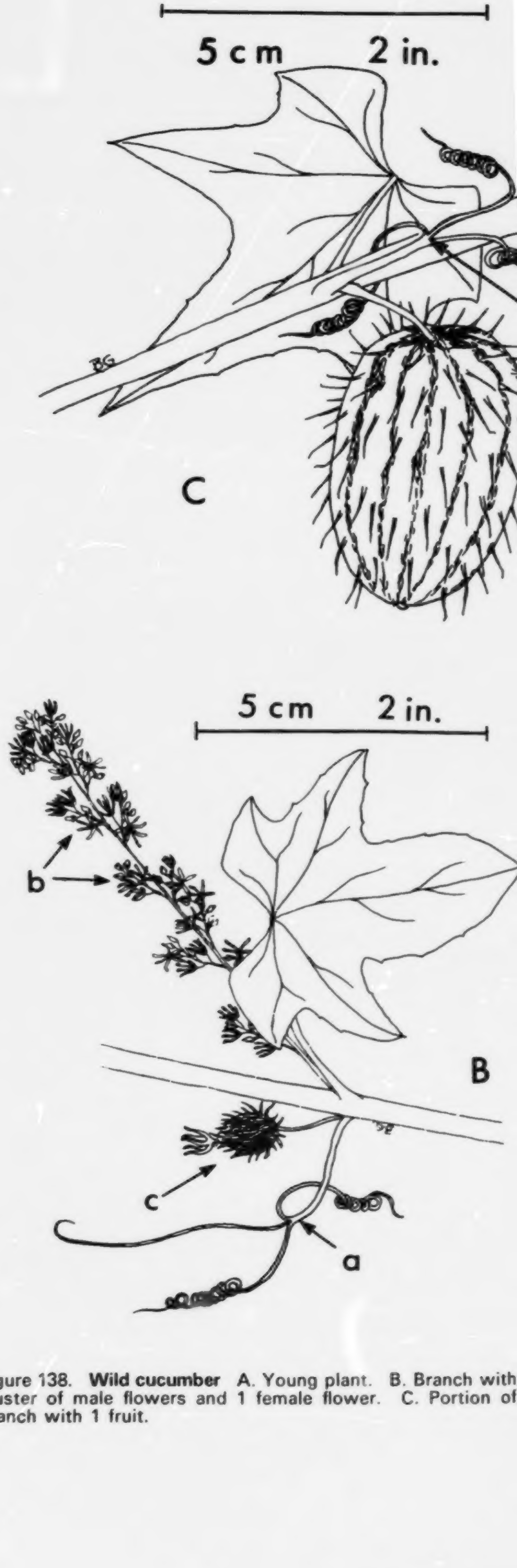
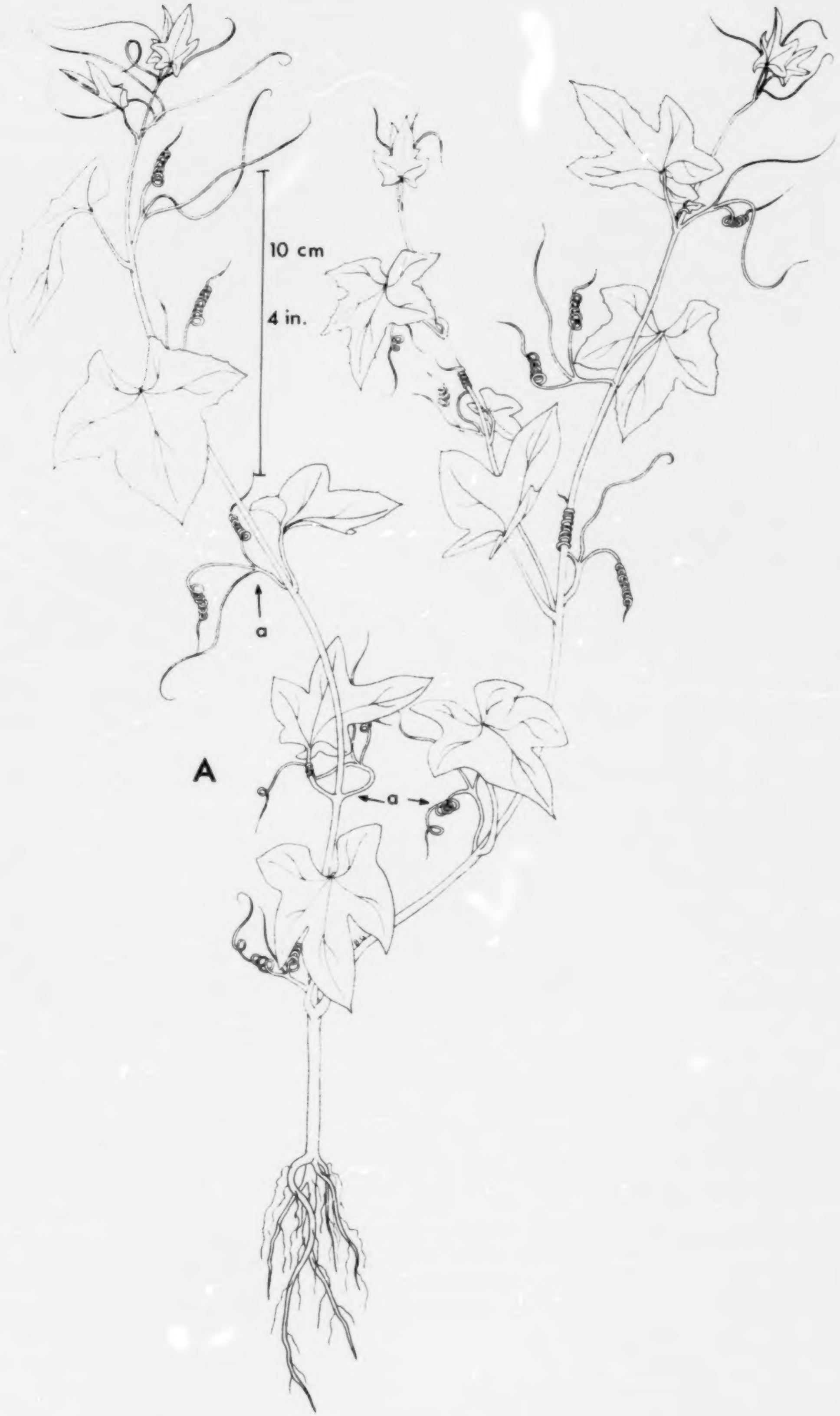


Figure 138. **Wild cucumber** A. Young plant. B. Branch with cluster of male flowers and 1 female flower. C. Portion of branch with 1 fruit.


10 cm
4 in.
a
A
a

# HAREBELL or BELLFLOWER FAMILY (Campanulaceae)

**Creeping bellflower,** *Campanula rapunculoides* L., (Figure 139, Plate 32) [campanule fausse raiponce, Bellflower, Rover bellflower] Perennial, reproducing by seed and by the extremely persistent, widely spreading, fleshy, whitish underground rhizomes (a) and thickened storage tubers (Plate 32). Stems, when present, erect, up to 1 m (40 in.) high, smooth or finely hairy, usually without branches; leaves mostly arising singly or in clusters directly from rhizomes below the ground surface (A), long-stalked and called "radical" leaves (root leaves); the blades round to nearly heart-shaped at the base, ovate, pointed towards the tip, irregularly toothed, usually finely hairy; leaves on developing stems (b, B) alternate (1 per node), similar but stalks progressively shorter and blades smaller, less heart-shaped and more regularly toothed; uppermost leaves (c) narrow and stalkless; flowers in elongating racemes at the ends of the stems, blue, bell-shaped, 2 – 3 cm (⅘ – 1⅕ in.) across, ending in 5 uniform points (d); flower stalks frequently curved and giving the whole inflorescence an attractive 1-sided appearance; seedpods (e) formed below the calyx and corolla, somewhat spherical, containing many very fine seeds. Flowers from June until autumn.

Creeping bellflower occurs throughout Ontario in lawns, gardens, fence lines, roadsides, waste places and occasionally in cultivated fields. It is sometimes planted in ornamental gardens but spreads into adjacent areas by underground rhizomes as well as by seed and is a very persistent weed. Nonflowering plants are distinguished by their many heart-shaped, irregularly toothed leaves arising from at or below the ground surface (A), the whitish, fleshy, underground rhizomes (a) and tubers; flowering plants have characteristic bell-shaped blue flowers with a 5-pointed rim (d).

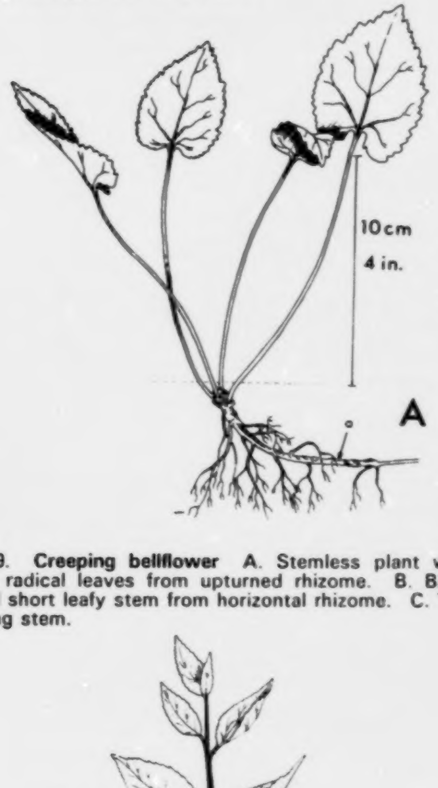
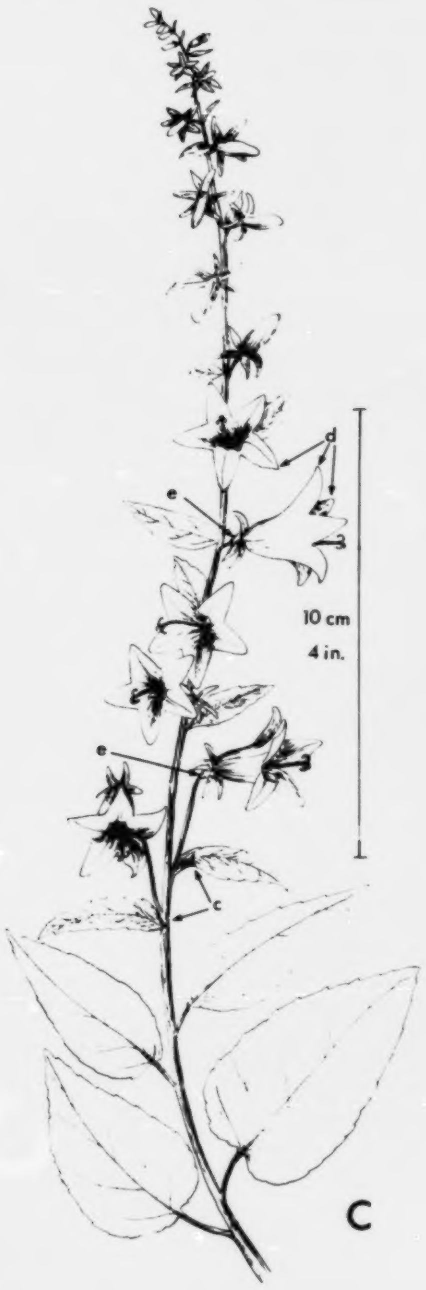
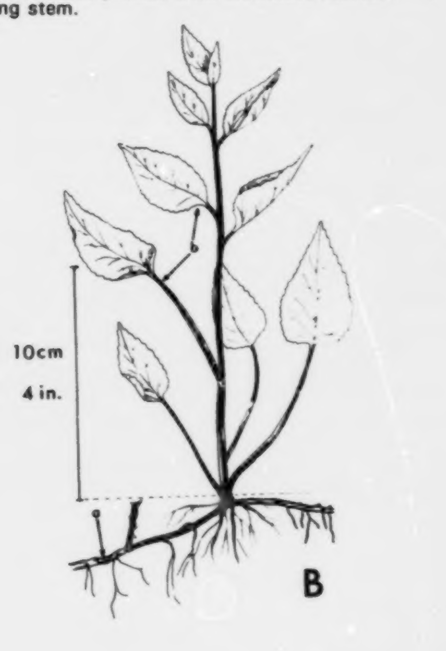


Figure 139. **Creeping bellflower** A. Stemless plant with cluster of radical leaves from upturned rhizome. B. Basal leaves and short leafy stem from horizontal rhizome. C. Top of flowering stem.





# COMPOSITE or ASTER FAMILY (Compositae)

The Composite Family includes many of our weedy plants. Some have large, bright, showy flower heads such as Black-eyed Susan, Dandelion, Ox-eye daisy and the thistles. Others, such as ragweeds and wormwoods, have small inconspicuous flower heads.

*The Composite "Flower Head"* (Figure 140,

What most people call "a flower" in the Composite or Aster Family is really a head, that is, a whole inflorescence of many small flowers tightly clustered together and resembling one single larger flower, hence the Family name "Composite." The individual small flowers are called florets and may be of two types: (1) *disk* or *tubular florets* (Figure 140 B, C, D) which have their 5 petals united into a tubular corolla with 5 lobes (a) at the end (Figures 162 d, 169 b, 141 d), and (2) *ray* or *ligulate* (strap-shaped) *florets* (Figure 140 A, B, C, E) which have their 5 petals united but forming a flat corolla (b) which may be pointed (Figure 141 c), round (Figure 151 a), square or 2-lobed, 3-lobed (Figure 142 b), or 5-lobed (Figure 180 b) at the end. The sepals of the individual florets are not recognizable as such. They have been modified into soft hair (Figure 181, Dandelion), or bristles (Figure 144 C, d, Beggarticks), or scales (Chicory), or may be completely absent (Stinking mayweed). Instead of being called "sepals", these hairs or bristles or scales are called "pappus" (c). The ovary (d) of each individual floret is below the corolla and pappus. It matures into a firm-shelled fruit containing a single seed, but the whole unit including the firm shell is often called a "seed" (for example, sunflower seed). All the florets of a single flower head are very compactly arranged side by side on a single, flat or rounded receptacle (e). If some or all of the florets in the head have a small bract (chaffy scale) or bristle adjacent to each, the receptacle is said to be chaffy, but if there are no chaffy scales or bristles among the florets, the receptacle is said to be "smooth" (e). Immediately below and surrounding the entire group of florets is a ring of bracts (f) usually green but sometimes white or amber called the "involucral bracts" or "tegules" or "phyllaries" (Figures 151 c, 162 e). These involucral bracts around the base of the flower head are often mistakenly thought to be sepals around the base of a single flower as in most other plant Families. Sepals in flowers belonging to other Families enclose and protect the delicate petals, stamens and pistil in single flowers before blossoming. In the same way, involucral bracts enclose and protect all of the individual florets of each flower head before the head opens and blossoming begins.

Classification of plants in the Composite Family is based partly on whether each flower head contains both ray and disk florets as in Black-eyed Susan (Figure 141 c, d) and Ox-eye daisy (Figures 140, 151 a, b), only disk florets with no ray florets as in the ragweeds (Figures 145, 146) and the thistles (Figures 164 – 168), or only ray florets with no disk florets as in Dandelion (Figure 181) and Chicory (Figure 180).

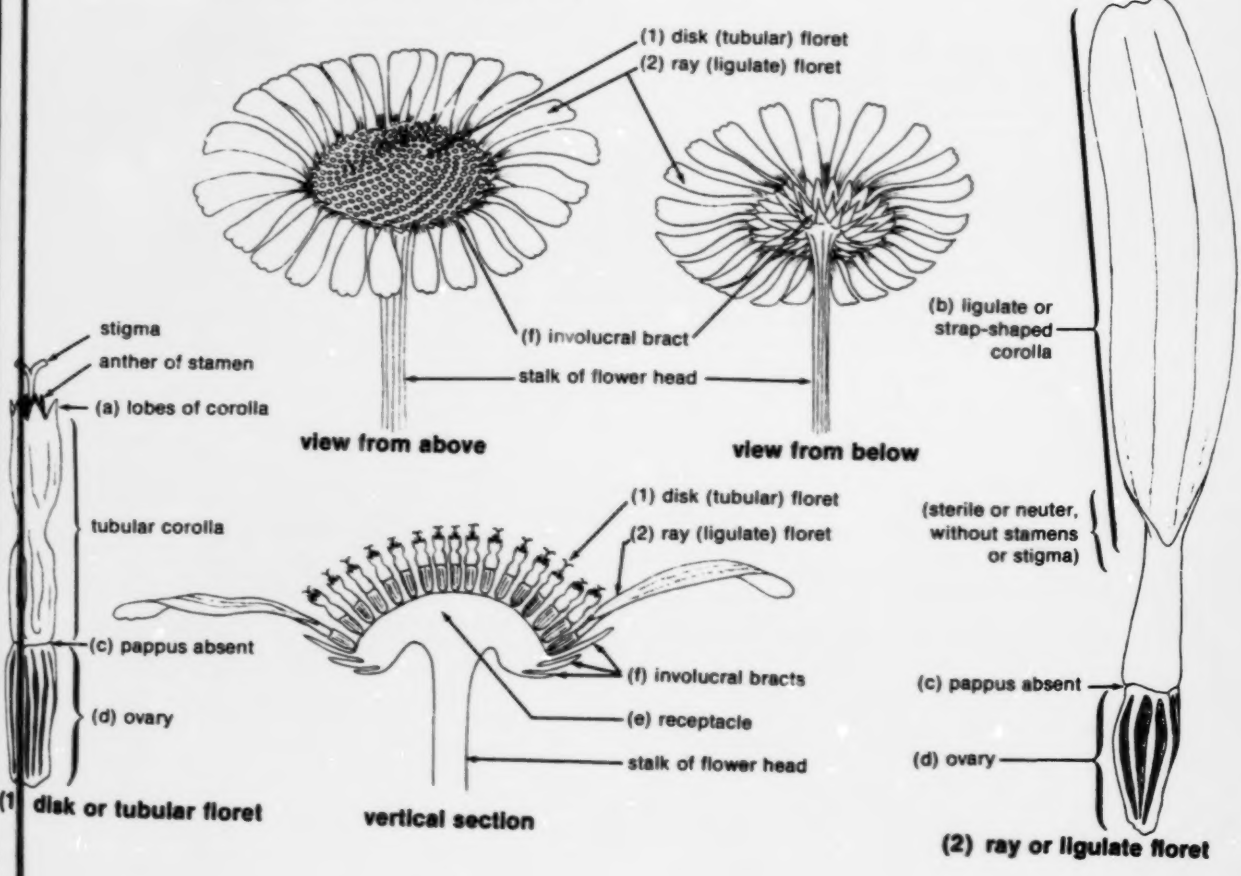


Figure 140 **The Composite "Flower Head"** of Ox-eye Daisy.

(1) disk (tubular) floret
(2) ray (ligulate) floret
(f) involucral bract
stalk of flower head
view from above
view from below
stigma
anther of stamen
(a) lobes of corolla
tubular corolla
(c) pappus absent
(d) ovary
(1 disk or tubular floret
(1) disk (tubular) floret
(2) ray (ligulate) floret
(f) involucral bracts
(e) receptacle
stalk of flower head
vertical section
(b) ligulate or strap-shaped corolla
(sterile or neuter, without stamens or stigma)
(c) pappus absent
(d) ovary
(2) ray or ligulate floret

**Black-eyed Susan**, *Rudbeckia serotina* Nutt., (Figure 141) [rudbeckie herissée, Coneflower, Yellow-daisy] Perennial or sometimes biennial, reproducing only by seed. Stems erect, 30 – 100 cm (12 – 40 in.) high, single or with a few branches in the upper parts, more or less rough-hairy throughout; leaves alternate (1 per node); lower leaves long-elliptic, tapering to a long stalk (a); upper leaves (b) narrow, stalkless, smooth-margined or somewhat coarsely toothed; all leaves rough-hairy and usually dark green; flower heads (see page 153) large and showy at the ends of long, thin, erect branches, 2.5 – 7 cm (1 – 3 in.) diameter with ray florets (c) orange to orange-yellow and spreading like spokes of a wheel; disk florets (d) dark purple or blackish, individually very small and tightly packed on a conic receptacle forming a prominent, hard, dark, raised center in the head, like the hub of a wheel; seeds black, 4-angled with fine lengthwise lines. Flowers from mid-June to September.

Black-eyed Susan occurs throughout Ontario in meadows, pastures, edges of woods, river valleys, lakeshores and roadsides, usually in coarse-textured soils. It is distinguished by its long-elliptic, rough-hairy leaves, and showy, long-stemmed flower heads with bright yellow ray florets (c) and dark purplish to blackish disk florets (d).

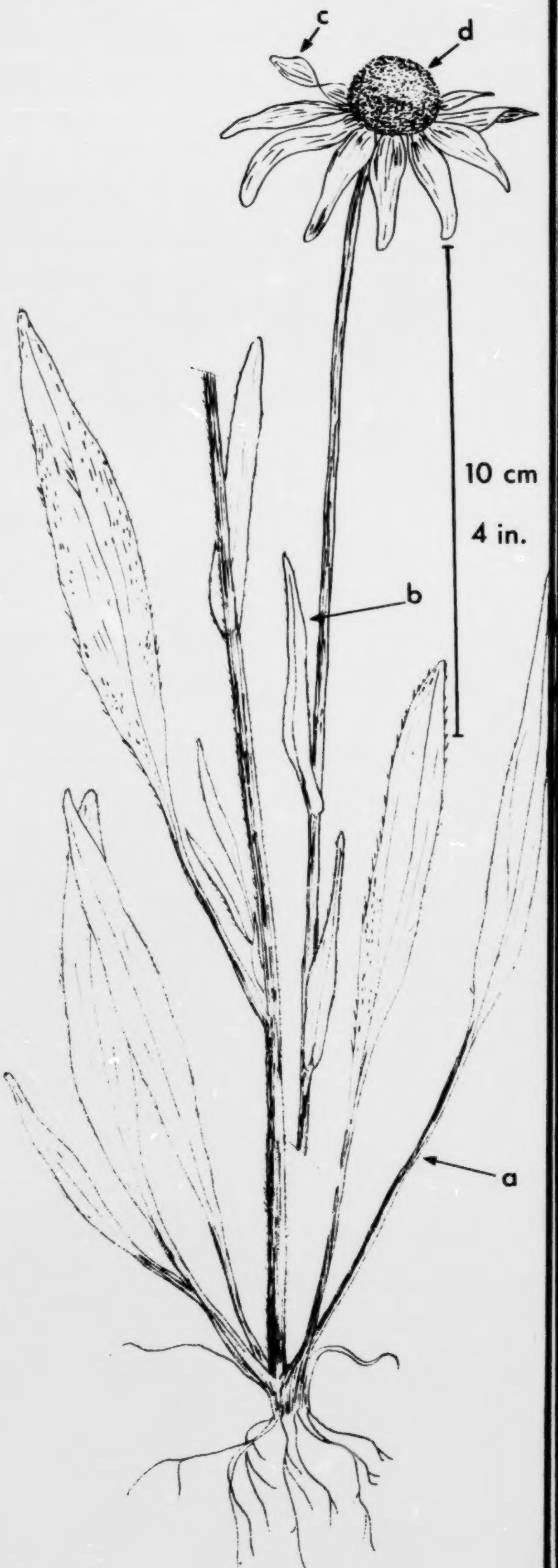
**Tall coneflower**, *Rudbeckia laciniata* L., (not illustrated) [rudbeckie laciniée, Cut-leaved coneflower, Great coneflower], a taller plant than Black-eyed Susan with larger, broad, 3- to 7-lobed or divided leaves and larger flower heads with bright yellow ray florets and dull greenish-yellow disk florets. It is native throughout southern Ontario in meadows and river valleys.

The cultivated ornamental perennial, Golden-glow, *Rudbeckia laciniata* L. var. *hortensis* Bailey, (not illustrated) [rudbeckie laciniée cultivée], selection from Tall coneflower, occasionally escapes from cultivation into waste places and along roadsides.

**Jerusalem artichoke**, *Helianthus tuberosus* L., (Plate 45) [topinambour, Tuberous sunflower], is a perennial, reproducing both by seed and by spreading, fleshy, underground tubers resembling slender potatoes; stems erect, 1 – 3 m (40 in. – 10 ft) high, with few branches except near the top; lower leaves opposite (2 per node), stalked, ovate or broadest near the roundish base and tapering towards the pointed tip, 10 – 25 cm (4 – 10 in.) long, somewhat toothed, harshly hairy on the upper surface but smooth or softly hairy on the lower surface, usually with 3 main veins from the tip of the leafstalk; middle leaves similar and either opposite or alternate (1 per node); upper leaves smaller, always alternate; flower heads (see page 153) bright yellow, resembling the cultivated sunflower but smaller, 5 – 10 cm (2 – 4 in.) across; disk florets yellow and not as crowded as in Black-eyed Susan; ray florets longer and more upright than in Black-eyed Susan.

Jerusalem artichoke occurs in moist meadows and valleys in southern Ontario, has occasionally been cultivated as an ornamental and for its edible tubers, persists after cultivation in old gardens, and has spread to cultivated fields, fence lines and roadsides. It is distinguished by its tall erect stems producing numerous, fleshy tuberous roots like slender potatoes, its medium to large leaves broad near the base and harsh on the upper surface, and its bright yellow, sunflower-like flower heads.

Figure 141. Black-eyed Susan



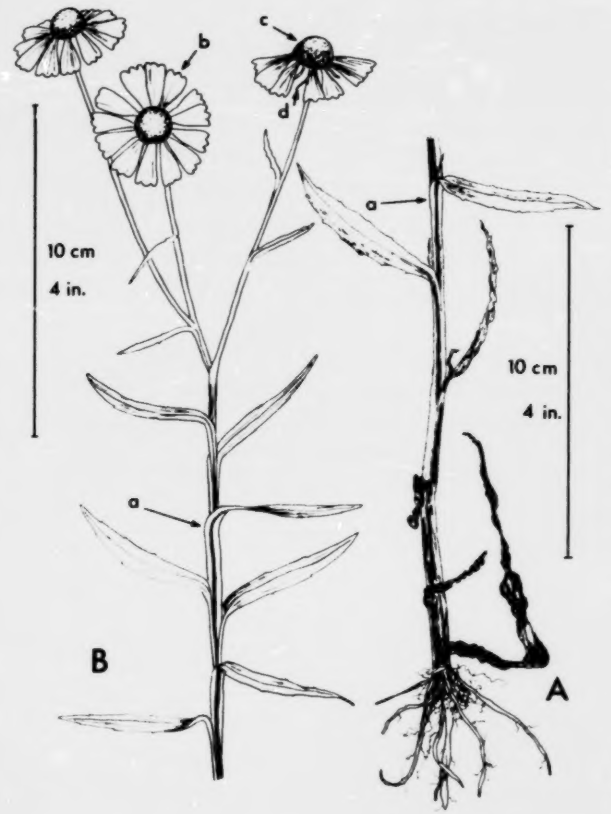


Figure 142. **Sneezeweed** A. Base of plant. B. Top of flowering stem.

**Sneezeweed,** *Helenium autumnale* L., (Figure 142) [hélénie] Perennial, reproducing only by seed. Stems 30 – 150 cm (1 – 5 ft) high from a fibrous root, smooth or finely hairy; leaves numerous, alternate (1 per node), linear to narrowly elliptic, stalkless, somewhat toothed, the edges of the leaves continuing down the stem as narrow leaflike wings (a); flower heads (see page 153) bright and showy, 2.5 – 5 cm (1 – 2 in.) across, several to many on erect branches; ray florets (b) 10 to 20 on each head, bright yellow, 3-lobed at the end, soon bending back towards the stem; disk florets (c) lighter yellow, very compact, forming a raised, rounded center in the flower head; head surrounded by very narrow involucral bracts (d). Flowers from August to late autumn.

Sneezeweed occurs in southern Ontario in moist meadows, low places in woods and thickets, wet depressions and along lakes and streams. It is distinguished by its winged stems (a), long narrow leaves, large bright yellow flower heads, with the ray florets (b) 3-lobed and bent back, and surrounded by narrow bracts (d).

Sneezeweed is poisonous to livestock, especially cattle and sheep.

**Hairy galinsoga,** *Galinsoga ciliata* (Raf.) Blake, (Figure 143) [galinsoga cilié, Galinsoga, Quickweed] Annual reproducing only by seed. Stems erect, often much-branched with opposite branches (usually 2 per node), 20 – 70 cm (8 – 28 in.) high, usually covered with coarse spreading hair; leaves opposite (2 per node), lower ones long-stalked, upper nearly stalkless, blades oval, pointed towards the tip, coarsely toothed, flower heads (a) (see page 153) small, about 3 – 7 mm (⅛ – ¼ in.) across on short to long stalks from axils of leaves, the stalks usually hairy with slightly glandular hair; ray florets (b) white, small, about 5 per head, only slightly longer than the yellowish-green to whitish disk florets; pappus-scales present and as long as tubes of ray florets. Flowers from June to late autumn.

Hairy galinsoga is common throughout southern Ontario in gardens, roadsides and waste places especially near towns and cities. It is distinguished by the opposite, oval, coarsely toothed leaves on opposite-branched stems and small flower heads (a) each with 5 white tiny rays (b) and a yellow disk.

**Small-flowered galinsoga,** *Galinsoga parviflora* Cav., (not illustrated) [galinsoga à petites fleurs], very similar to Hairy galinsoga and distinguished from it only on technical characteristics (ray florets without pappus) It also occurs in similar situations in Ontario but is much less common than Hairy galinsoga.

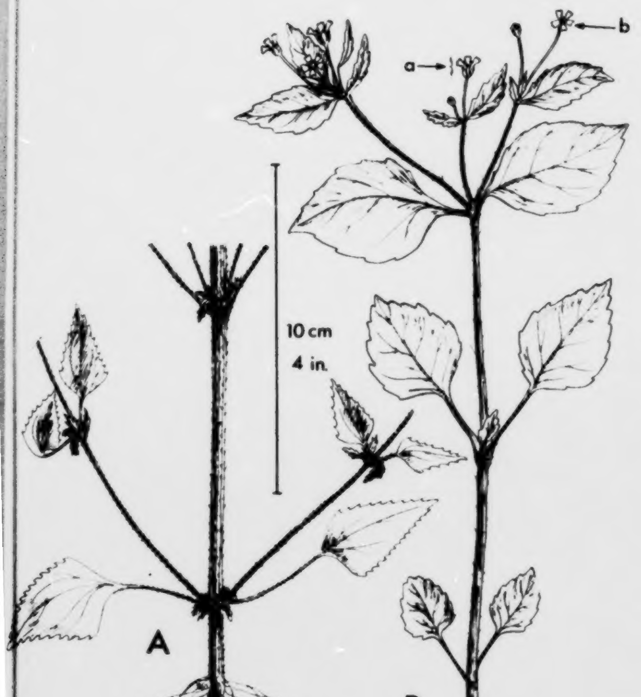


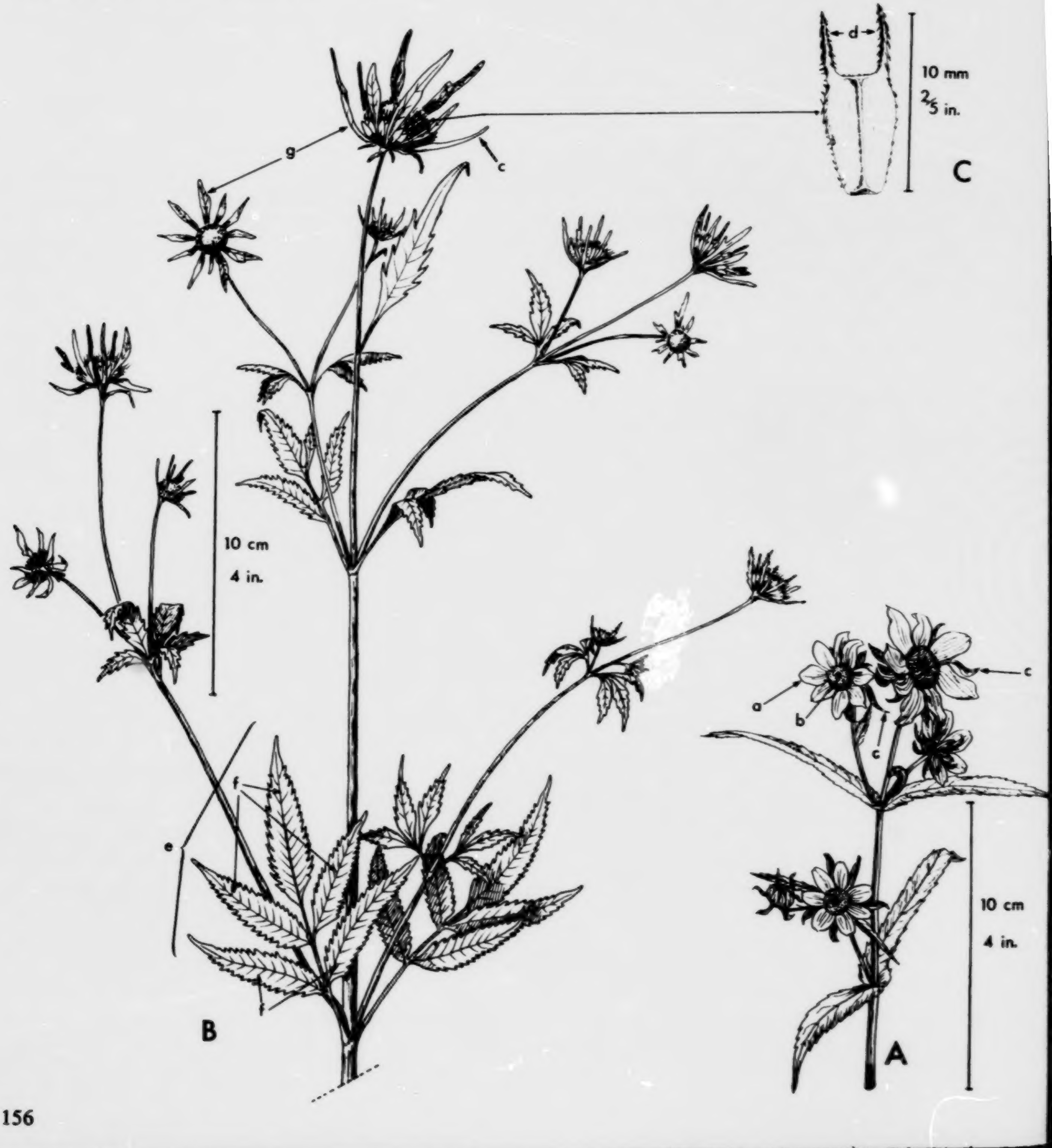
Figure 143. **Hairy galinsoga** A. Base of plant. B. Top of flowering plant.

**Nodding beggarticks**, *Bidens cernua* L., (Figure 144A) [bident penché, Beggar's-ticks, Bur-marigold] Annual, reproducing only by seed. Stems erect, branched, 10 – 100 cm (4 – 40 in.) high; leaves opposite (2 per node), undivided, narrowly ovate to linear, sharply toothed to almost smooth, leaf bases sometimes united around stem; flower heads (see page 153) showy, 2.5 – 5 cm (1 – 2 in.) across, ray florets (a) bright yellow, up to 1.5 cm (⅗ in.) long, usually 8 per head but occasionally fewer or absent altogether; disk florets (b) yellowish-green, many, densely crowded together; head surrounded by several, long, leafy, green involucral bracts (c); seeds brownish, flat, long-oval, with 2 downward-barbed awns (as in (d) ) on top. Flowers from July to late autumn.

Nodding beggarticks occurs throughout Ontario i moist places, usually in meadows, river valleys, roadsid ditches, and depressions in cultivated land. It is distinguished by opposite undivided leaves, large flower heads with usually 8 yellow ray florets (a), long, leafy green involucral bracts (c), and seeds with 2 downward-barbed awns.

**Tall beggarticks**, *Bidens vulgata* Greene, (Figure 144B, C) [bident vulgaire, Bur-marigold], similar in form and habit to Nodding beggarticks but distinguished by having compound leaves (e) with 3 or 5 leaflets (f), (just 1 leaflet resembling the whole leaf of Nodding beggarticks); flower heads usually lacking the large yellow ray florets, and surrounded by 10 to 16 or more long, thin, involucral bracts (g). Its seeds also have 2 downward-barbed awns (d, C). Tall beggarticks has a similar distribution to that of Nodding beggarticks.

Figure 144. **Nodding beggarticks** A. Top of flowering stem. **Tall beggarticks** B. Top of flowering stem. C. "Seed."



**Common ragweed**, *Ambrosia artemisiifolia* L., (Figure 145, Plate 40) [petite herb à poux, Short ragweed] Annual, reproducing only by seed. Stems erect, 15 – 150 cm (6 – 60 in.) high, usually much-branched, hairless or hairy throughout; lower leaves opposite (2 per node) but becoming alternate (1 per node) (B) higher on the plant, compound and finely divided, the final divisions (a) usually coarsely toothed, bright green to slightly yellowish-green on young plants, becoming grayish-green on older plants; flower heads (see page 153) not showy, individually small, 2 – 5 mm (1/12 – ⅕ in.) across, green and inconspicuous but very numerous and forming distinctive inflorescences (C, D, E); the sexes in flowers in different heads but usually both sexes on the same plant; heads of male (pollen-producing) flowers (D) in raceme-like elongated clusters at ends of branches, each male head (b) hanging downwards on a short stalk like a tiny inverted umbrella; female (seed-producing) heads (E) in axils of short, narrow, green bracts (c) near the base of each long cluster of male flower heads, the female head (d) with a single flower and producing a single, hard, somewhat triangular or diamond-shaped seed with several, short, sharp spines (e) around the upper shoulder, the whole seed 3 – 5 mm (⅛ – ⅕ in.) long. Flowers from August to October.

Common ragweed is one of the most abundant weeds of cultivated land throughout southern Ontario, but is rare or absent in northern and northwestern parts of the province. It also occurs in gardens, flower borders, poorly kept lawns, roadsides, waste places, and in disturbed areas in pastures and meadows. It is distinguished by finely divided leaves which are opposite in the lower part and alternate (B, C) in the upper part of the plant, yellow-green at first, later gray-green with age, and by the very numerous, tiny, non-showy, greenish male flower heads (b) clustered along slender branches (D) in the upper part of the plant (C).

Common ragweed is the most important cause of hay fever during August and September. Although inconspicuous and not recognized by most people, the tiny male flower heads (b) hanging on their slender stalks produce huge quantities of very light pollen. As the pollen falls from these hanging flowers, it is caught by the wind and may be carried for distances greater than 200 km (125 miles). Hay fever sufferers, therefore, may be affected by pollen from plants far away. For more information, see the bulletin, *Canadian havens from hay fever,* published by the Canadian Government Travel Bureau, Ottawa, Canada, and available from Information Canada, Ottawa.

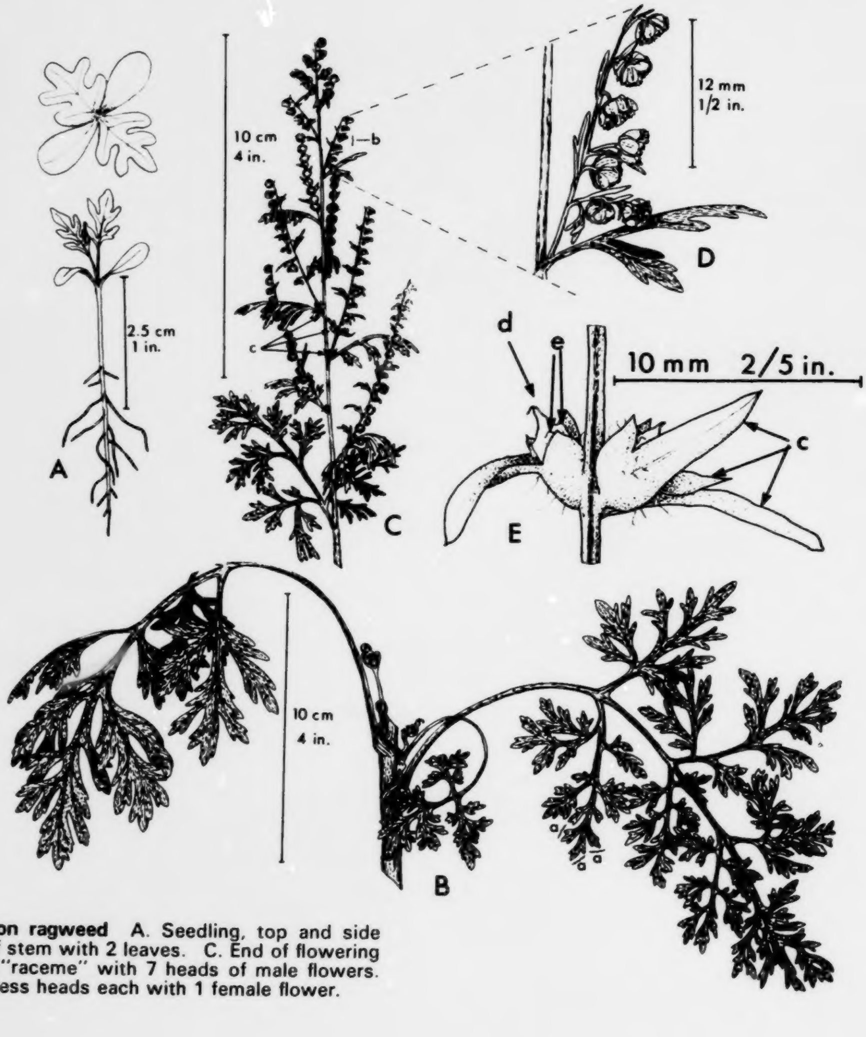


Figure 145. **Common ragweed** A. Seedling, top and side views. B. Portion of stem with 2 leaves. C. End of flowering branch. D. 1-sided "raceme" with 7 heads of male flowers. E. Stem with 2 stalkless heads each with 1 female flower.

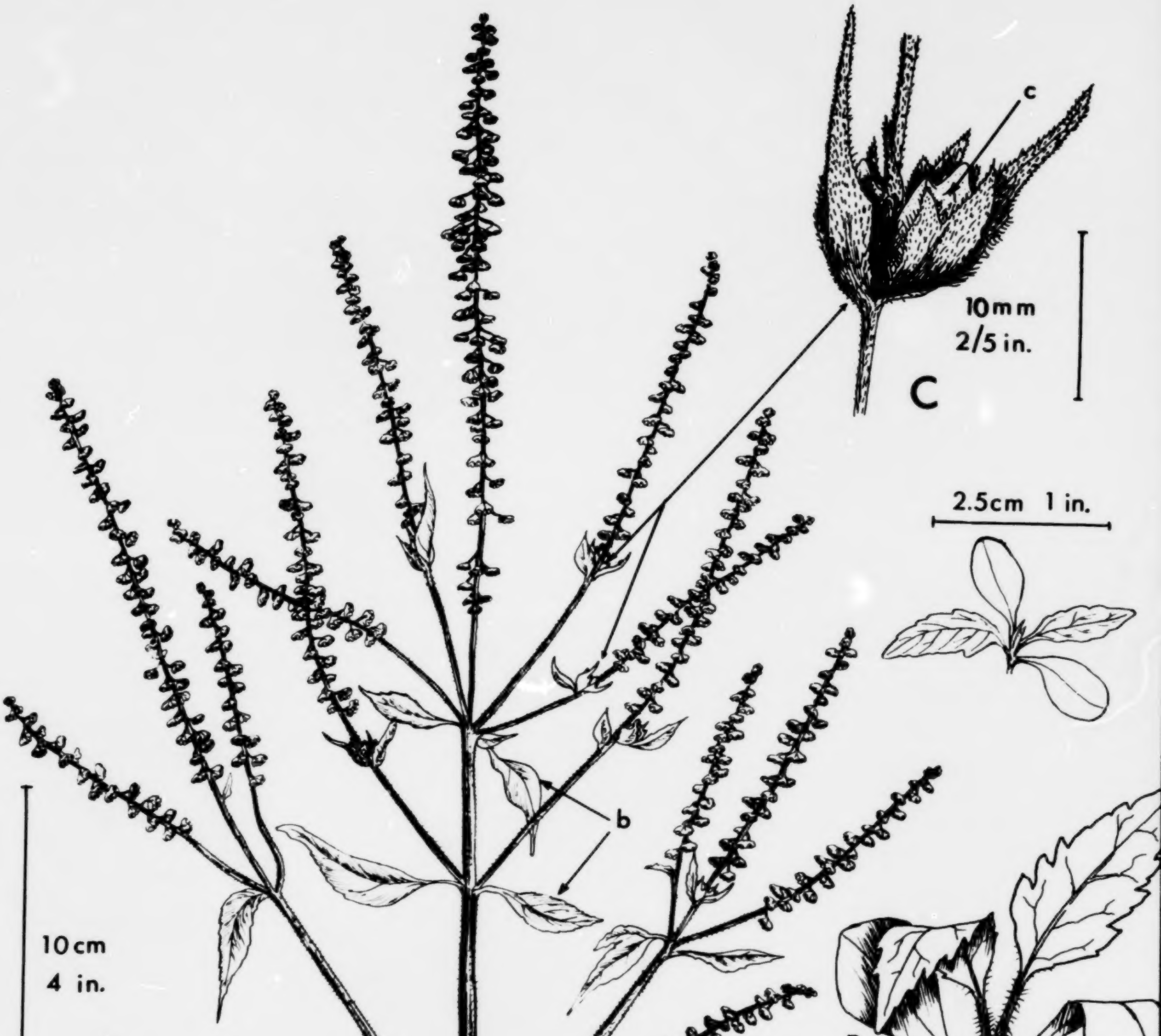

c
10mm
2/5 in.
C
2.5cm 1 in.
b
10cm
4 in.
a
5 cm
2 in.
A
B

Figure 146. **Giant ragweed** A. Seedling, top and side views. B. Top of flowering plant. C. Lower portion of flowering branch with 3 stalkless heads, each having 1 female flower.

It is essential that **Goldenrod,** *Solidago* spp., (not illustrated) [verge d'or], be not confused with Common ragweed. Several species of Goldenrod occur throughout Ontario in meadows, pastures, woodland, river flats and roadsides, and have very conspicuous bright yellow inflorescences during late summer and autumn. Goldenrods do produce pollen but only in small quantities, and their pollen is heavy and sticky. It is not carried on the wind and the plants are pollinated by insects. Because Goldenrod pollen is not carried on the wind, it must not be blamed as the source of irritation for ragweed hay fever sufferers.

**Giant ragweed,** *Ambrosia trifida* L., (Figure 146) [grande herbe à poux, Great ragweed, Kinghead, Tall ragweed] Annual, reproducing only by seed. Stems erect, 0.4 – 4 m (16 in. – 13 ft) tall, usually much-branched and somewhat hairy; leaves opposite (2 per node) throughout the plant except towards the ends of the smaller branches at flowering time where they may be alternate (1 per node); leaves large, rounded in outline and 3- to 5-lobed (a), the lobes smooth or coarsely toothed; uppermost small leaves usually not lobed (b); sometimes all leaves not lobed; flower heads (see page 153) with separate sexes but both sexes usually on the same plant; male (pollen-producing) flower heads and female (seed-producing) flower heads similar to those described for Common ragweed except that the female head is much larger and usually 2 to 4 are grouped together (C); seed much larger than Common ragweed, 5 – 10 mm (⅕ – ⅖ in.) long with several, prominent, lengthwise ridges ending in short blunt spines (c) around the upper shoulder of the seed. Flowers from August to October.

Giant ragweed occurs in river valleys, meadows, roadsides and occasionally in cultivated fields in the southwestern portion of southern Ontario. The pollen of Giant ragweed is also an important cause of hay fever during August and September.

**Cocklebur,** *Xanthium strumarium* L., (Figure 147, Plate 41) [lampourde glouteron, Bur, Clotbur] Annual, reproducing only by seed. Stems erect, usually much-branched, 30 – 120 cm (12 – 48 in.) high, rough-hairy, often with lengthwise ridges and spotted; cotyledons (seed leaves) (a) long, narrow, smooth, often persisting at the base of a developing stem and sometimes still present at maturity; leaves stalked, oval or triangular, somewhat angular heart-shaped at the base with the edges of the lowermost main branching veins exposed in a broad V or M (b), margins coarsely toothed and surfaces harsh or rough-hairy; lower leaves frequently opposite (2 per node), but upper leaves alternate (1 per node); flower heads (see page 153) clustered in axils of leaves and at ends of branches; sexes in separate heads but both sexes on the same plant; heads of male (pollen-producing) flowers (c) small, more or less spherical, not spiny, usually several in small clusters above the larger, hooked, spiny heads of female (seed-producing) flowers; seedpod or "bur" actually 1 complete flower head (d) containing 2 female flowers, becoming very hard and woody, covered with numerous hooked spines (e) and terminating in 2 very hard, hooked, beak-like spines (f), and turning brown at maturity. Each bur contains 2 seeds, usually 1 a bit larger than the other. Flowers from August to October.

Cocklebur occurs throughout Ontario around farmyards, in fields, along roadsides and river flats. It is particularly common in low areas which may be wet only during spring and fall, and is usually more common in fine-textured soils such as clays and clay loams than on coarser soils. Seedlings (B) of Cocklebur are poisonous to livestock, especially to young pigs which seem to relish their taste.

Mature plants of Cocklebur are readily distinguished by the large coarse burs (d) and their harsh leaves. Young and nonflowering plants are distinguished by their opposite, rough-textured leaves which have the characteristic V- or M-shaped base with the edges of the main lower branch veins (b) exposed. Seedlings of Cocklebur are distinguished by their large, long, narrow, smooth cotyledons (seed leaves) (a) and by the remnant of the bur (g) usually attached to the root at or below the ground surface. Plants of Cocklebur are highly variable in height, amount of branching, overall shape of leaves, arrangements of inflorescences and size and shape of each bur. This group is not well understood taxonomically so, although several botanical names have been used for various groups of cockleburs, all of the Ontario plants can be referred to *Xanthium strumarium* in the broad sense.

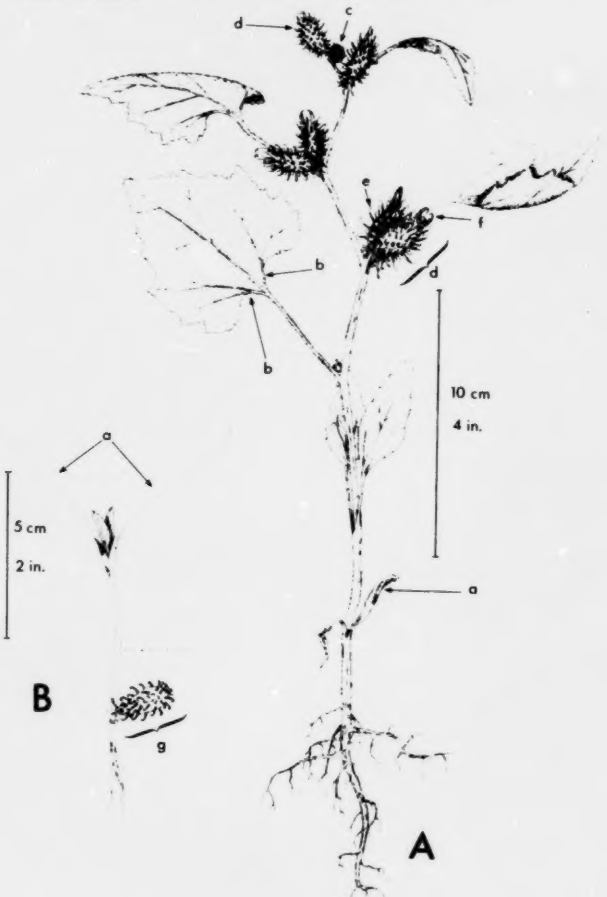


Figure 147. **Cocklebur** A. Plant. B. Seedling.

**Stinking mayweed**, *Anthemis cotula* L., (Figure 148; Plate 37) [camomile des chiens, Dog fennel, Stinking chamomile] Annual, reproducing only by seed. Stems usually erect, but low and bushy-branched, 10 – 60 cm (4 – 24 in.) high, usually hairless in the lower part but finely hairy (a) just below the flower heads; leaves very finely dissected, soft, alternate (1 per node), numerous, or sparse where plants are crowded; flower heads (see page 153) daisy-like, 15 – 30 mm (⅗ – 1¼ in.) across; ray florets (b) white, spreading; disk florets (c) yellow; seeds grayish to brownish, longer than wide, surface rough with lengthwise rows of tiny bumps. All parts of the plant, when crushed, have an offensively disagreeable odor resembling evaporating urine, hence the common name. Flowers from June to late summer.

Stinking mayweed occurs throughout Ontario in waste places, along roadsides, around dwellings and farmyards and, occasionally, in cultivated fields. It is distinguished by its offensive odor, finely dissected leaves, and finely hairy stems (a) below the white and yellow flower heads.

**Corn chamomile**, *Anthemis arvensis* L., (not illustrated) [chamomille des champs], almost identical to Stinking mayweed but its aromatic odor is not offensive. It has escaped from cultivation to roadsides and waste places in a number of areas in counties near Lake Ontario.

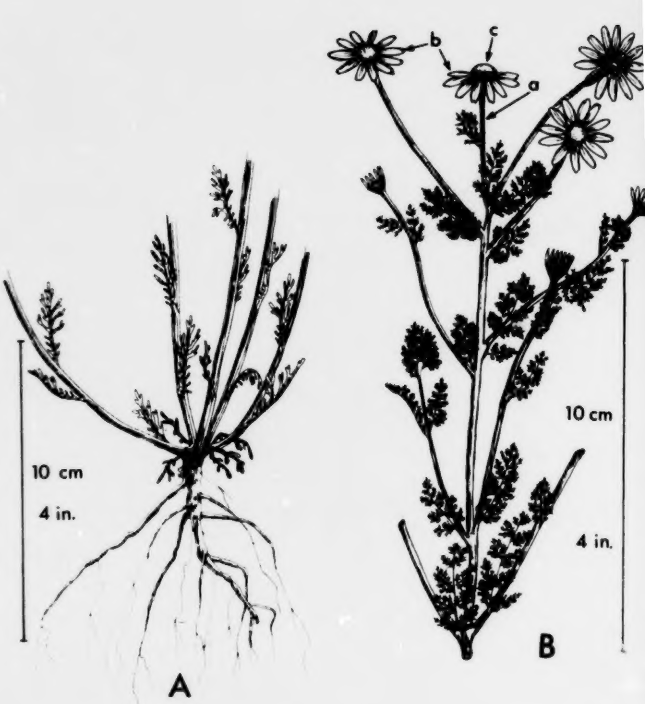


Figure 148. **Stinking mayweed** A. Base of plant. B. Flowering stem.

**Pineappleweed**, *Matricaria matricarioides* (Less.) Porter, (Figure 149) [matricaire odorante] Annual, reproducing only by seed. Stems erect, much-branched, 5 – 40 cm (2 – 16 in.) high, smooth, hairless; leaves very finely dissected, light green, smooth, hairless and slightly fleshy, alternate (1 per node); flower heads (a) (see page 153) small, conic or egg-shaped, 5 – 9 mm (⅕ – ⅜ in.) across, yellowish-green, and without ray florets. The whole plant, and especially the flower heads, when crushed has a distinct pineapple-like odor, hence the common name. Flowers from spring until autumn.

Pineappleweed occurs throughout Ontario especially around farmyards, waste places and roadsides. It is distinguished by its small stature, small flower heads (a) without white ray florets, smooth hairless stems below the flower heads and its pineapple odor.

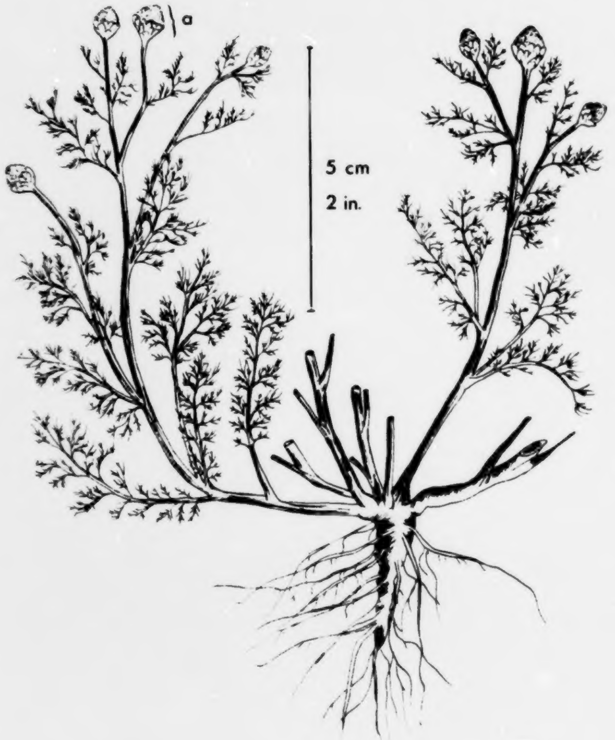


Figure 149. **Pineappleweed**

**Scentless chamomile,** *Matricaria maritima* L. var. *agrestis* (Knaf) Wilmott, (not illustrated) [matricaire inodore, Scentless mayweed, *Matricaria inodora* L.], very similar to both Pineappleweed and Stinking mayweed. It is a short-lived perennial or sometimes annual, almost identical in size and general appearance to Stinking mayweed including the large yellow-centered flower heads with white ray florets, but its stems below the flower heads are smooth and hairless, and the whole plant is virtually without odor. It is found only sporadically in Ontario in waste places, pastures and roadsides.

**Yarrow,** *Achillea millefolium* L., (Figure 150) [achillée mille-feuille, Common yarrow, Fernweed, Milfoil, *Achillea lanulosa* Nutt.] Perennial, reproducing by seed and by spreading underground rootstalks (A), often forming very dense feathery- or ferny-leaved patches; stems erect, about 60 cm (2 ft) tall but up to 100 cm (40 in.) in fertile situations, or very short in lawns or trampled situations, usually covered with fine woolly hair; leaves very numerous at base of plant (A) but fewer and smaller upwards on the stem (B), finely divided or feather-like, lower ones long-stalked, the upper stalkless, alternate (1 per node), green to grayish-green, finely woolly to silky hairy; flower heads (see page 153) very small but numerous in dense, flat-topped to rounded clusters, each head 3 – 7 mm (⅛ – ¼ in.) across, ray florets (a) usually only 5 per head, white or rarely pinkish; disk florets (b) more numerous, whitish; seeds small, flat, grayish with whitish margins. The whole plant has a characteristic sage-like odor which is offensive to some people but attractive to others. Flowers from June to late autumn.

Yarrow is very common throughout Ontario in natural areas, meadows, pastures, waste places, roadsides, and frequently in lawns. It is distinguished by its very finely divided, feather-like or ferny leaves, the dense patches from its spreading underground root system; the flat-topped clusters of small flower heads, each head with usually 5 tiny white ray florets (a); and the characteristic sage-like aroma of the plant. Forms with pinkish to purplish flowers are cultivated as ornamental perennials and may escape to lawns and roadsides.

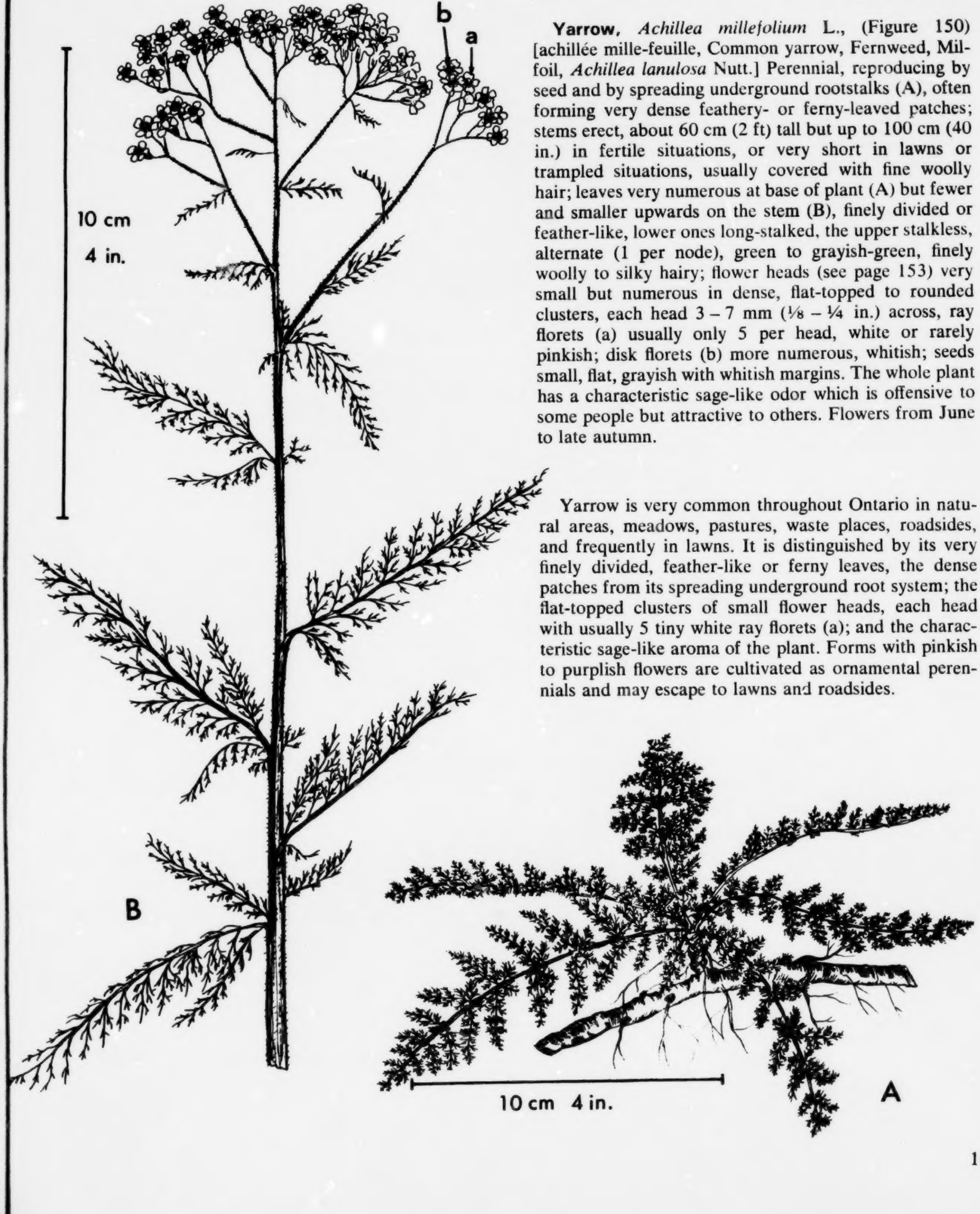


Figure 150. **Yarrow** A. Base of plant from horizontal underground rootstalk. B. Flowering stem.

**Ox-eye daisy**, *Chrysanthemum leucanthemum* L., (Figure 151) [marguerite blanche, Field daisy, White daisy] Perennial, reproducing by seed and by underground rhizomes. Stems erect or curving upwards 20 – 90 cm (8 – 36 in.) high, single from upturned ends of rhizomes, or few to many from a stout root-crown; lower leaves broadly spoon-shaped, deeply and coarsely dissected or toothed, stalked, smooth, dark green, often glossy and fleshy; upper leaves narrower, similarly dissected or deeply toothed, stalkless and often clasping the stem, alternate (1 per node); flower heads (see page 153) large and showy, daisy-like, borne singly at ends of stems and main branches; ray florets (a) usually 15 to 30 per head, white, 1 – 2 cm (⅖ – ⅘ in.) long; disk florets (b) bright yellow, short, numerous, densely packed, forming a slightly rounded center; involucral bracts (c) at base of each head numerous, firm, overlapping, light green with brownish margins; seeds top-shaped with a knob-like projection on the upper end, ridged, and with alternate black and white stripes. When crushed, all parts of the plant have a disagreeably sour odor. Flowers from early June to late autumn.

Ox-eye daisy is very common and conspicuous throughout Ontario, often forming dense infestations in pastures, meadows and waste places, but also occurring in cultivated land, roadsides, gardens and lawns. It is distinguished by the dark green, smooth, somewhat fleshy, dissected or coarsely toothed leaves, the large, conspicuous, daisy-like flower heads with white rays (a) and yellow centers (b), the rhizomatous and fibrous-rooted underground system, and its disagreeable odor.

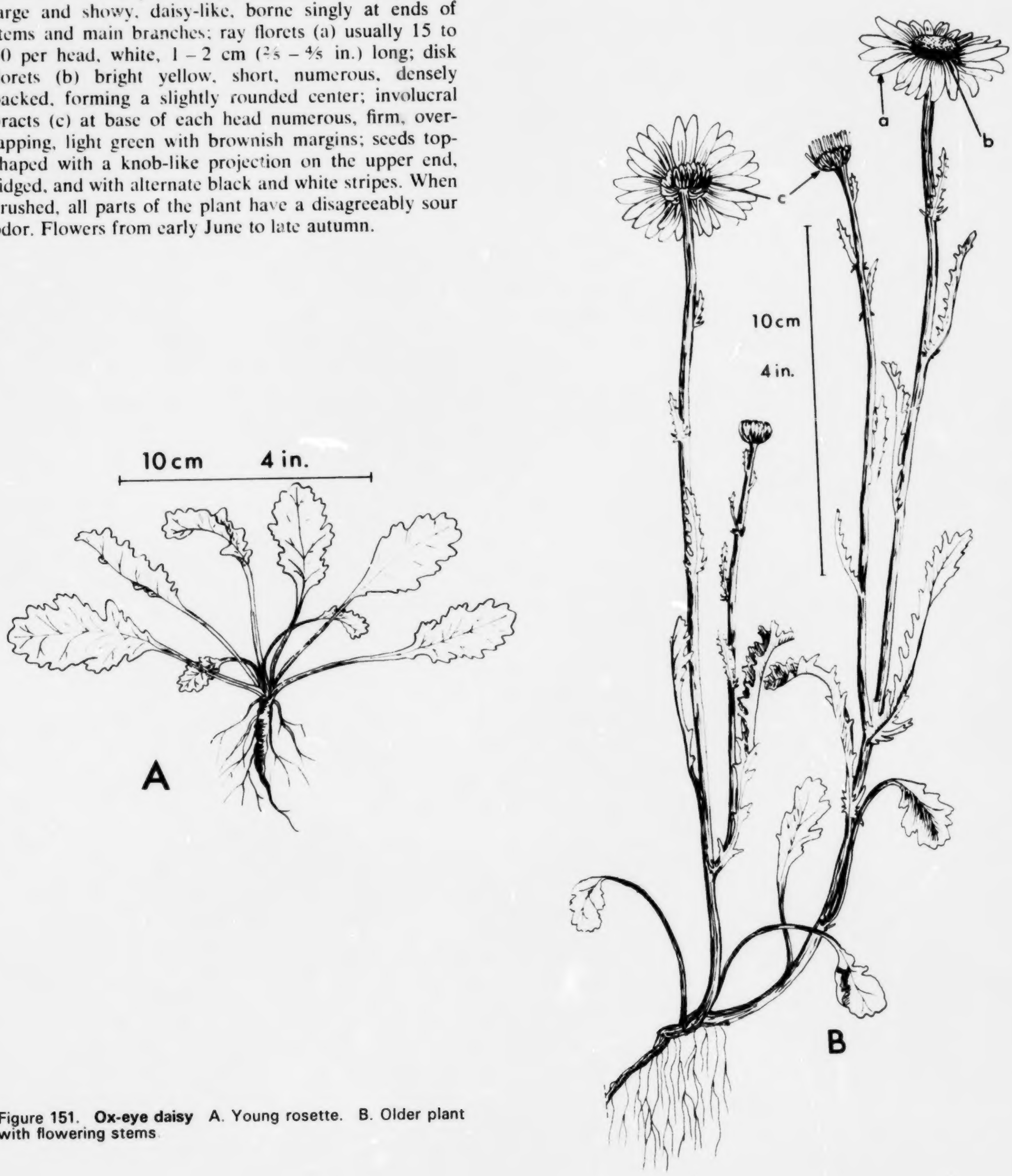


Figure 151. **Ox-eye daisy** A. Young rosette. B. Older plant with flowering stems

**Tansy**, *Tanacetum vulgare* L., (Figure 152) [tanaisie vulgaire, Common tansy] Perennial, reproducing by seed and by spreading underground rhizomes. Stems coarse, erect, tall (40 – 150 cm, 16 – 60 in.), hairless; leaves pinnately divided and redivided, at first resembling leaves of Yarrow but becoming larger and coarser with the ultimate divisions not as fine; basal leaves large and long-stalked, often forming large dense clumps; stem leaves numerous, smaller and stalkless towards the top, alternate (1 per node); flower heads (see page 000) in dense, rounded or flat-topped clusters at ends of stems and branches; each head firm, button-like, 5 – 10 mm (⅕ – ⅖ in.) across, without ray florets but with numerous, small, densely packed yellow disk florets. All parts of the plant have a strong, characteristic, "tansy" aroma. Flowers from July to September.

Tansy occurs sporadically throughout Ontario in waste places, edges of fields, roadsides and old gardens. It is distinguished by its large, pinnately divided and redivided leaves resembling but coarser than Yarrow, its small button-like yellow flower heads crowded in rounded or flat-topped clusters, and its characteristic aroma.

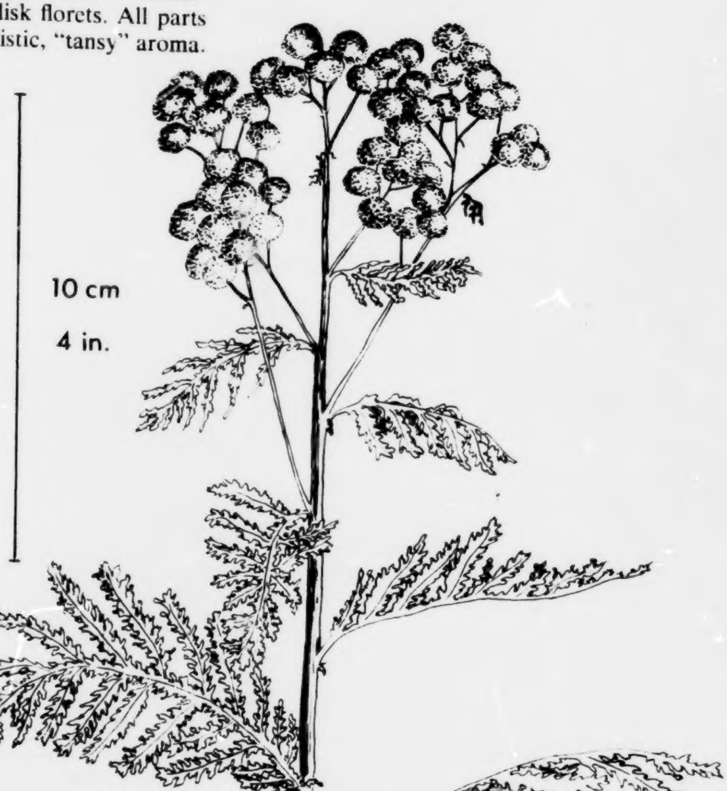
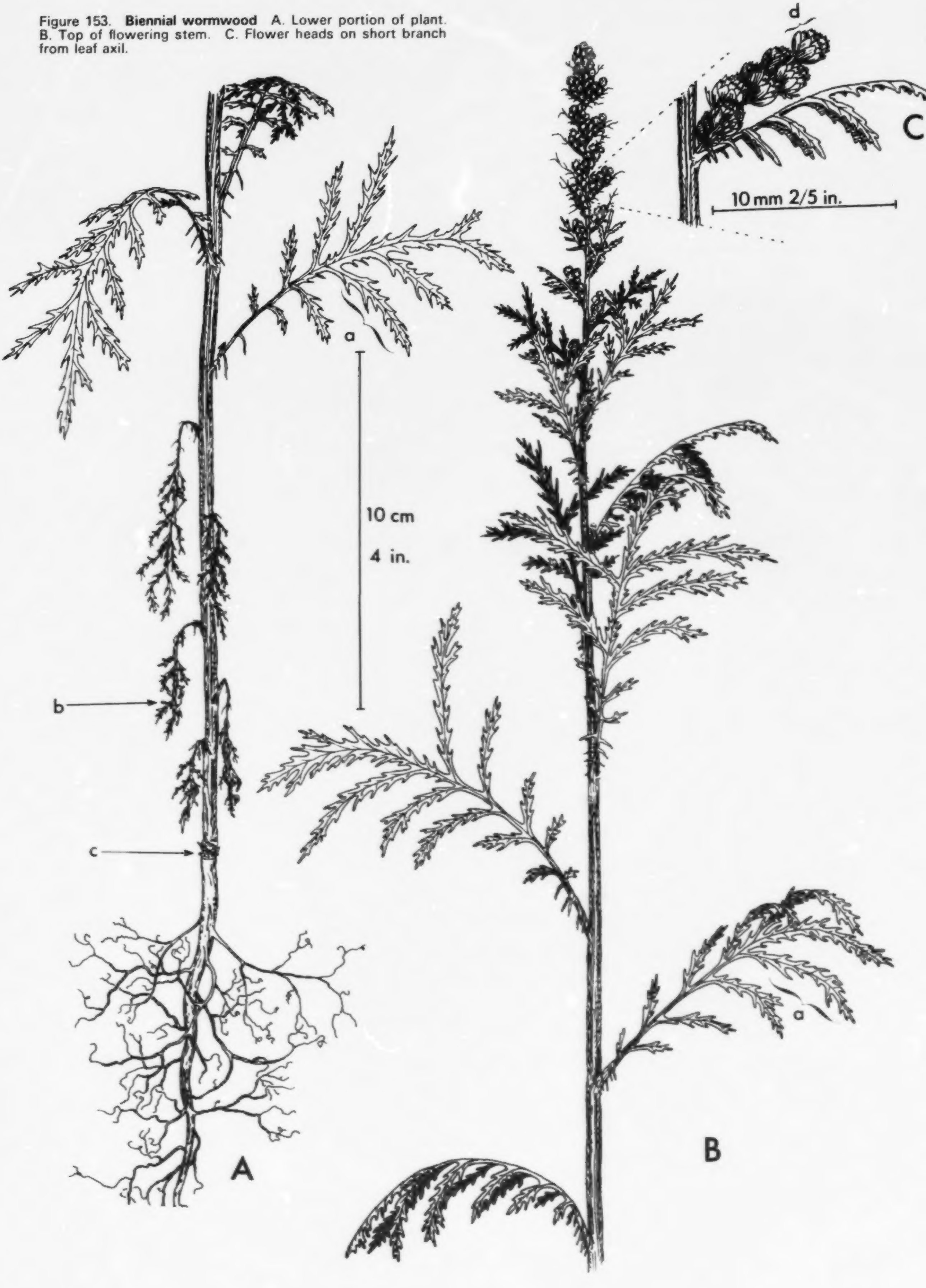


Figure 152. **Tansy**

Figure 153. **Biennial wormwood** A. Lower portion of plant. B. Top of flowering stem. C. Flower heads on short branch from leaf axil.


d
C
10 mm 2/5 in.
a
10 cm
4 in.
b
c
A
a
B

**Biennial wormwood**, *Artemisia biennis* Willd., (Figure 153, Plate 42) [armoise bisannuelle, Carrot-weed] Annual or biennial, reproducing only by seed. Stems erect, little or not branched, 10 – 150 cm (4 – 60 in.) tall or occasionally much taller, smooth, hairless, firm; first leaves of young plant in a basal rosette, short-stalked, pinnately divided and redivided, the final divisions coarsely and sharply toothed; stem leaves similar to basal leaves but usually only once-divided with each division (a) coarsely and sharply toothed, alternate (1 per node); by flowering time the lower stem leaves usually dying (b), and the basal rosette of leaves gone, only their scars (c) remaining; flower heads (d, C) (see page 153) greenish and inconspicuous, clustered on many short branches in the axils of small leaves towards the top of the stem forming a compact general inflorescence; each individual flower head very small, about 2 mm (1/12 in.) across, yellowish-green, without ray florets; seeds numerous and very small. Upper leaves, stem and flower heads, and to a lesser extent the basal leaves, when crushed have an odor resembling a combination of sage and carrot. Flowers from August to October.

Biennial wormwood occurs throughout Ontario in waste places, fence lines, meadows, around buildings, and occasionally in cultivated land. It is distinguished by its erect habit, sharply toothed (a) pinnately divided leaves, numerous short clusters of tiny flower heads (B) along the upper stem forming a compact general inflorescence, and its odor of mixed sage and carrot. It can cause tainted milk when eaten by dairy cows.

**Absinth**, *Artemisia absinthium* L., (not illustrated) [armoise absinthe, Absinthe, Vermooth], is a silvery-gray, silky-hairy perennial relative of Biennial wormwood. Stems 40 – 150 cm (16 – 60 in.) high, gray-woolly, often many from a single root crown, very hard or almost woody at the base; leaves silvery-silky on both surfaces, roundish in outline but compound, 2 to 3 times divided, the final divisions flat, broad, 2 – 3 mm (1/12 – ⅛ in.) wide, and with round tips; lower leaves long-stalked, upper ones stalkless; flower heads like those of Biennial wormwood but gray-woolly and scattered along longer branches towards the ends of stems. The whole plant has a strong, sour, sage-like odor. Flowers from August to September.

Absinth occurs in scattered localities in Ontario in pastures, waste places and roadsides. The strongly aromatic foliage causes severe taint in milk when eaten by dairy cows. This plant has also been used to flavor certain alcoholic beverages, but this practice is discouraged because the plant contains a poisonous alkaloid.

**Common groundsel**, *Senecio vulgaris* L., (Figure 154) [séneçon vulgaire] Annual, reproducing only by seed. Stems erect or somewhat reclining, often branched, 10 – 60 cm (4 – 24 in.) high, smooth, somewhat fleshy; leaves alternate (1 per node), variable in shape from smooth and almost without teeth to shallowly or deeply lobed, with the lobes (a) finely to coarsely and irregularly toothed, slightly fleshy; lower leaves stalked, upper ones stalkless and often clasping (b) the stem; flower heads (c) (see page 153) stalked in clusters at the end of stems and branches; each flower head 5 – 10 mm (⅕ – ⅖ in.) across, cylindrical or conic; without ray florets; the disk florets yellowish; involucral bracts (surrounding each flower head) small, overlapping, usually with distinct black tips (d); seeds small, short-hairy, with a prominent, white, hairy pappus. Flowers from June to late autumn.

Common groundsel occurs throughout Ontario, often very abundant, in gardens, row crops, waste places and roadsides. Young plants can be distinguished by their irregularly lobed (a) and toothed leaves without white milky juice; older plants by their small conic-cylindrical flower heads (c) with black-tipped involucral bracts (d) around the base of each head.

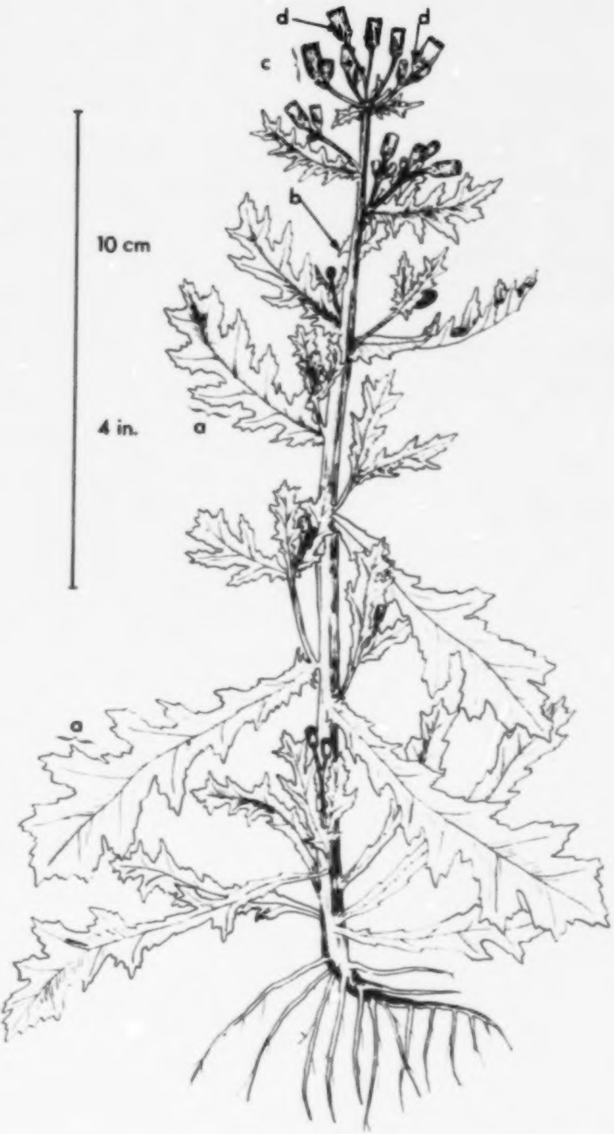


Figure 154. Common groundsel

**Tansy ragwort,** *Senecio jacobaea* L., (Figure 155) [séneçon jacobée, Stinking Willie] Biennial or short-lived perennial closely related to Common groundsel. It is usually a taller plant (20 – 100 cm, 8 – 40 in.) with leaves broader in outline but more finely divided, not as fleshy, and cobwebby-hairy below, and with its flower heads in a short, broad, nearly flat-topped cluster at the end of the stem (B); each head with several, small, yellow ray florets (a) 4 – 8 mm (⅙ – ⅓ in.) long, a dense center of yellow disk florets (b), and with involucral bracts (c) darker green but not black at their tips. Flowers from July to October.

Tansy ragwort occurs in only a few isolated localities in southern Ontario along roadsides and in waste areas. It is poisonous to livestock and is responsible for Pictou disease of cattle, a serious problem in Nova Scotia where the weed is widespread.

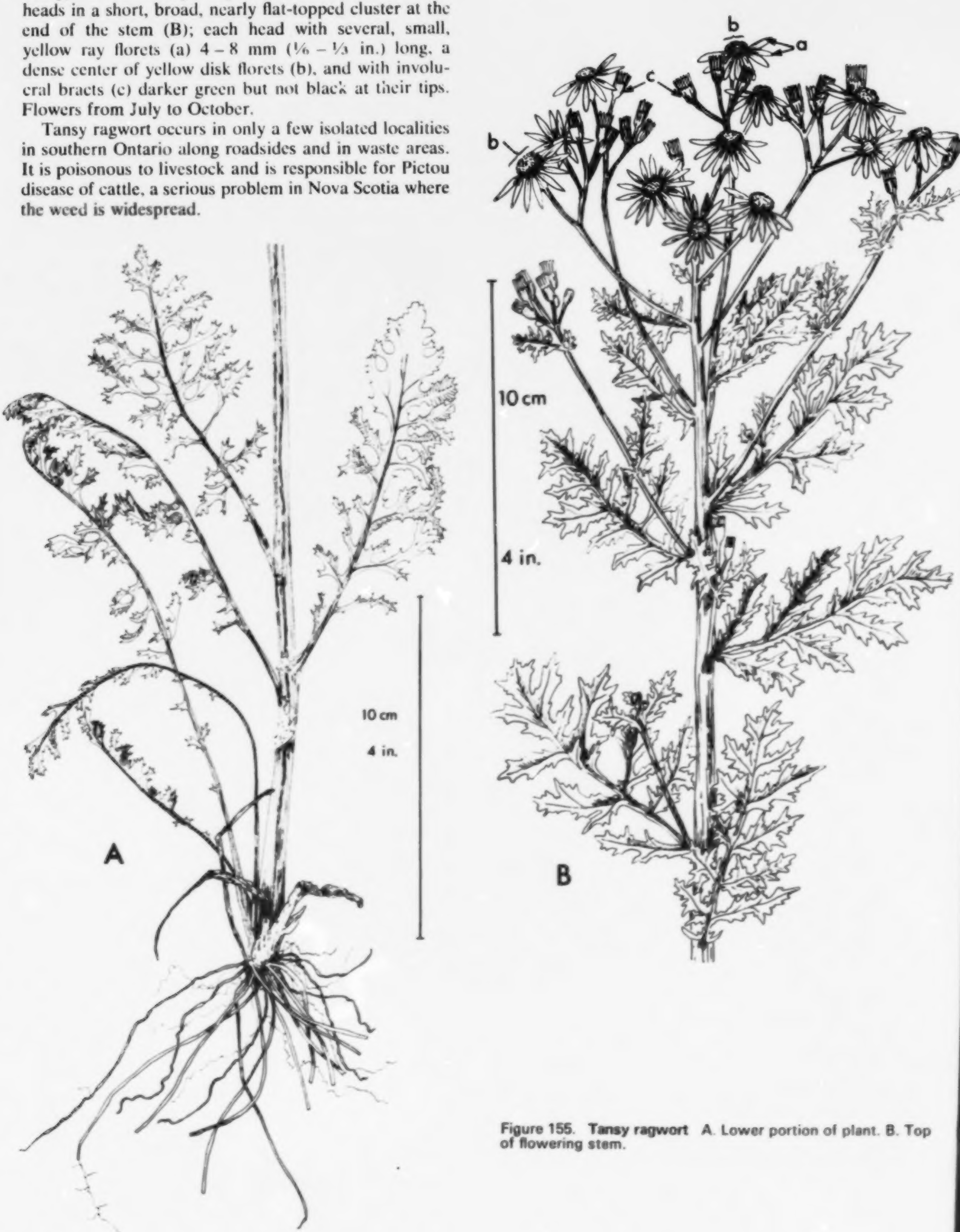
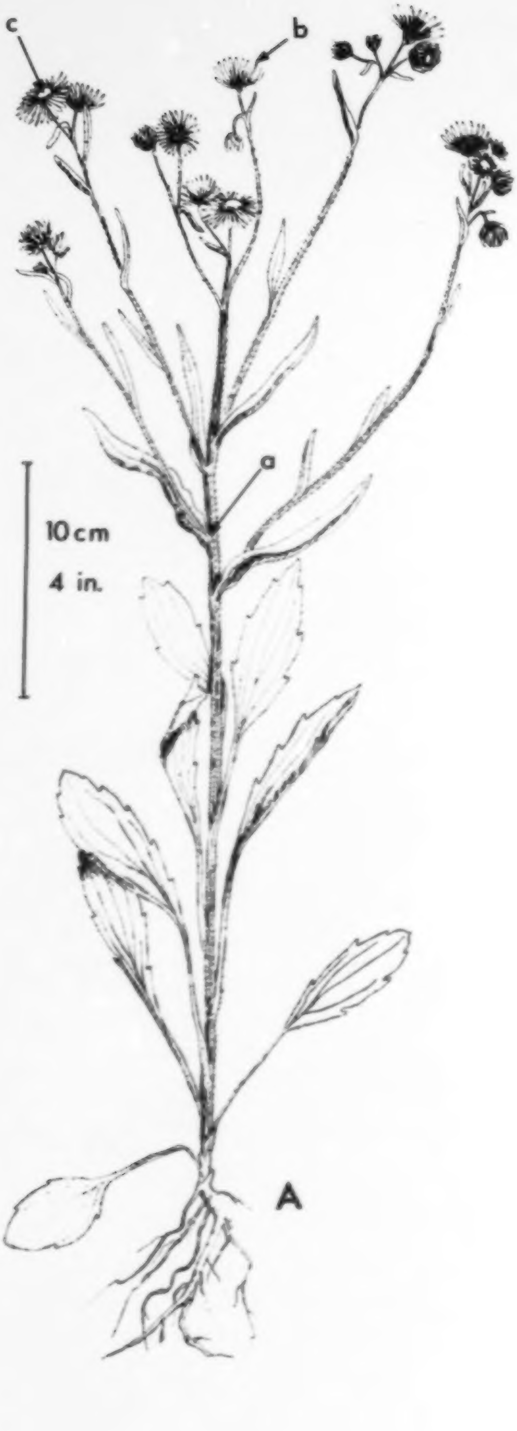


Figure 155. **Tansy ragwort** A. Lower portion of plant. B. Top of flowering stem.

**Annual fleabane,** *Erigeron annuus* (L.) Pers., (Figure 156) [vergerette annuelle, Annual daisy fleabane, Daisy fleabane] Annual or sometimes biennial, reproducing only by seed. Stems erect, 20 – 150 cm (8 – 60 in.) high, short-hairy; first leaves in a basal rosette (B), broadly elliptic, coarsely toothed, long-stalked, bright green and usually hairy; lower and middle stem leaves similar but narrower, alternate (1 per node), mostly soft-hairy and usually not clasping the stem; upper leaves short-stalked or stalkless and sometimes partly clasping the stem (a), shallowly toothed or margins nearly smooth; flower heads (see page 153) in open clusters at the ends of stems and branches, each head 12 – 25 mm (½ – 1 in.) across, bright and showy; ray florets (b) white or sometimes pinkish to bluish, narrow, very numerous (up to 80 or more per head); disk florets (c) yellowish and densely packed forming a nearly flat-topped center. Flowers from June to late autumn.

Annual fleabane occurs throughout Ontario in pastures, meadows, waste places, gardens, roadsides and occasionally cultivated fields. It is distinguished by bright green, broadly ovate, coarsely toothed, long-stalked, hairy, basal leaves (B); at least the lower and middle stem leaves distinctly toothed and soft-hairy, but not strongly clasping the stem; and the showy white flower heads.



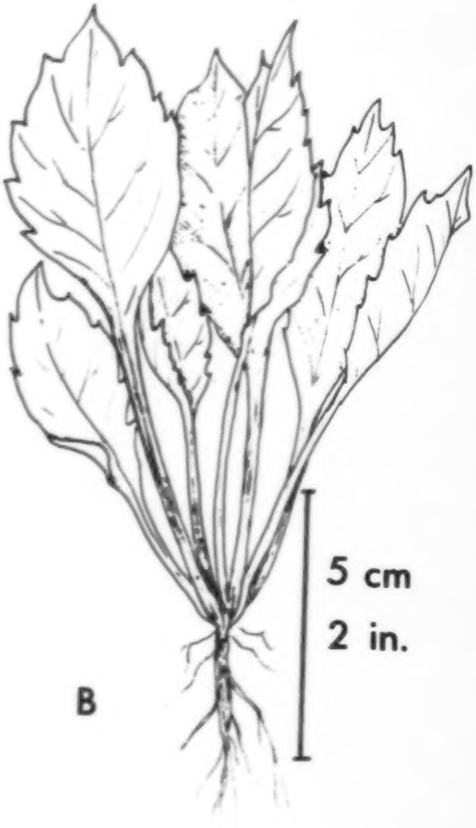


Figure 156. Annual fleabane A. Flowering plant. B. Rosette of basal leaves.

Figure 157. **Rough fleabane**

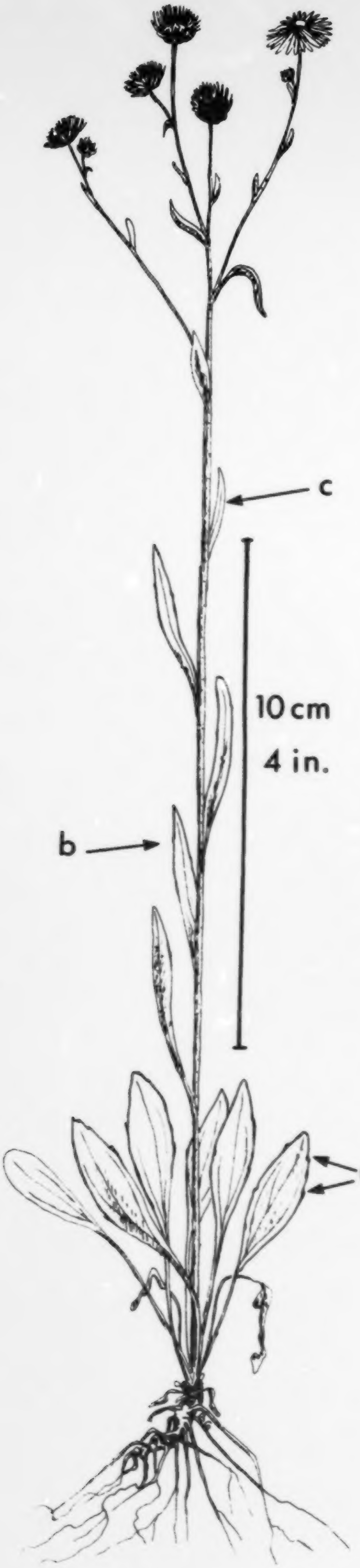
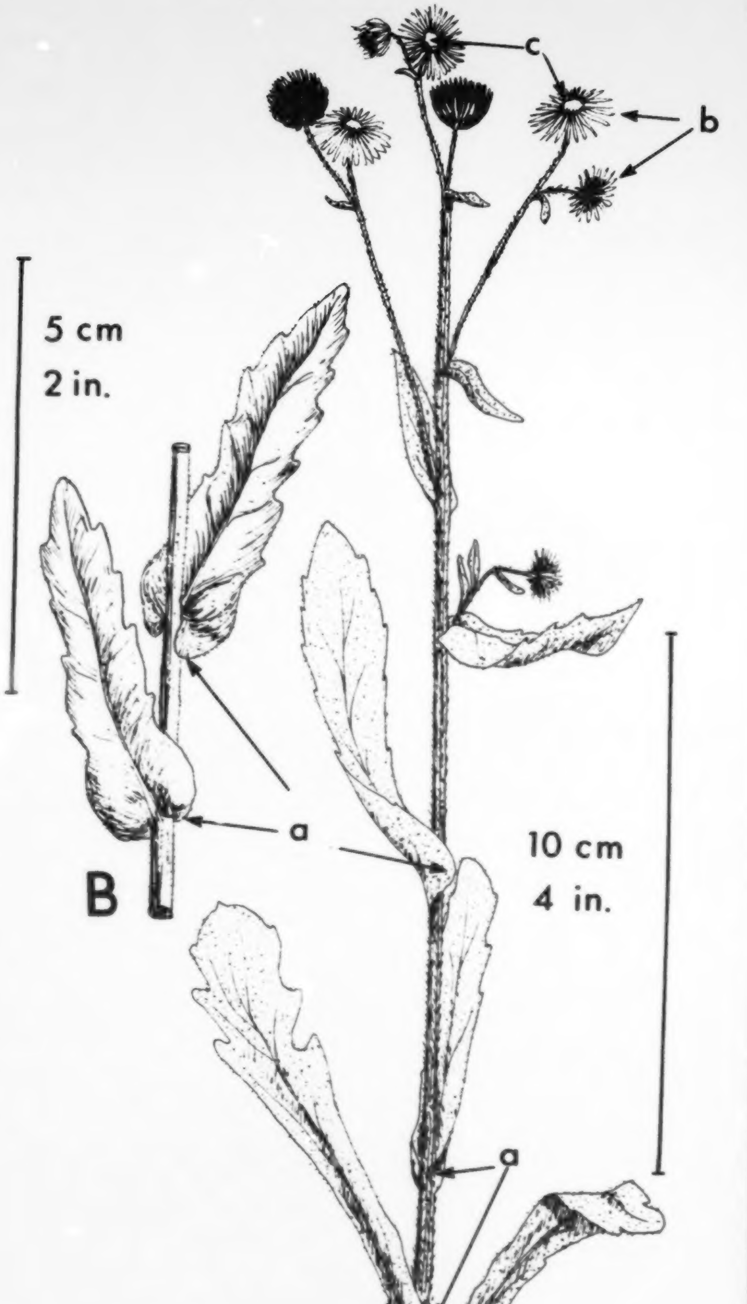

c
10 cm
4 in.
b
a

Figure 158. **Philadelphia fleabane** A. Flowering plant. B. Leaves near middle of stem.


c
b
5 cm
2 in.
a
B
a
10 cm
4 in.
a
A

**Rough fleabane,** *Erigeron strigosus* Muhl., (Figure 157) [vergerette rude, Daisy fleabane, Rough daisy fleabane] Very similar to Annual fleabane; differing by smaller, narrower, darker green leaves which are slightly rough with short stiff hair; only the basal (a) and lower stem leaves (b) having a few shallow teeth, the middle and upper leaves (c) usually very narrow and without teeth; and the flower heads averaging slightly smaller in size and in numbers of ray florets. It occurs throughout Ontario and is distributed in similar habitats to Annual fleabane.

**Philadelphia fleabane,** *Erigeron philadelphicus* L., (Figure 158) [vergerette de Philadelphie] Perennial, reproducing by seed, stolons and basal offsets. Stems erect, 30 – 100 cm (12 – 40 in.) high, soft-hairy; first leaves in spring in a rosette, elongated, broadest near the tip and narrowed gradually towards the base, with a few shallow teeth and often curled under along the edges; lower stem leaves similar but shorter and with somewhat broader bases, alternate (1 per node); middle and upper stem leaves (B) progressively shorter, stalkless, broadest near the tips and tapering to broad bases which usually clasp the stem (a); flower heads (see page 153) similar in size and shape to Annual fleabane but usually with pinkish to light purplish ray florets (b) and yellow disk florets (c). Flowers from June to late autumn.

Philadelphia fleabane occurs throughout Ontario in pastures, waste places, roadsides, and occasionally in gardens and cultivated fields. It is distinguished by its perennial habit, rosette and lower stem leaves broader near their tips and tapering towards the stem, upper stem leaves broader near their bases and strongly clasping the stem, and ray florets usually pinkish to light purplish.

**Canada fleabane,** *Erigeron canadenisis* L., (Figure 159) [vergerette du Canada, Bitterweed, Fleabane, Hogweed, Horseweed, Mare's-tail, *Conyza canadensis* (L.) Cronq.] Annual or winter annual, reproducing only by seed. Stems erect, 10 – 180 cm (4 in. – 5 ft) high, hairy, little branched; leaves alternate (1 per node) but numerous and often appearing opposite (2 per node), soft-hairy at first but becoming harsh on older leaves, bright green; basal and lower stem leaves (A) narrowly oval, rarely more than 1 cm (⅖ in.) wide, tapering to a slender stalk, with a few, scattered, shallow teeth or without teeth; middle and upper leaves (B) linear, very narrow and usually without teeth; flower heads (see page 153) 3 – 5 mm (⅛ – ⅕ in.) across, very numerous on many short branches near the top of the main stem; ray florets white but very short and usually concealed by the slightly longer involucral bracts (a) around each flower head; disk florets yellowish; very fluffy at maturity. The leaves and other parts of the plant when crushed have a faint but distinctive odor reminiscent of carrots. Flowers from July to late autumn.

Canada fleabane occurs throughout Ontario in grainfields, pastures, waste places, roadsides and gardens. It is distinguished by its numerous, narrow, mostly toothless bright green leaves gradually decreasing in size from base to top of plant, its numerous, small, yellow-green flower heads lacking conspicuous ray florets, its odor suggestive of carrots, and its fluffy appearance when mature.

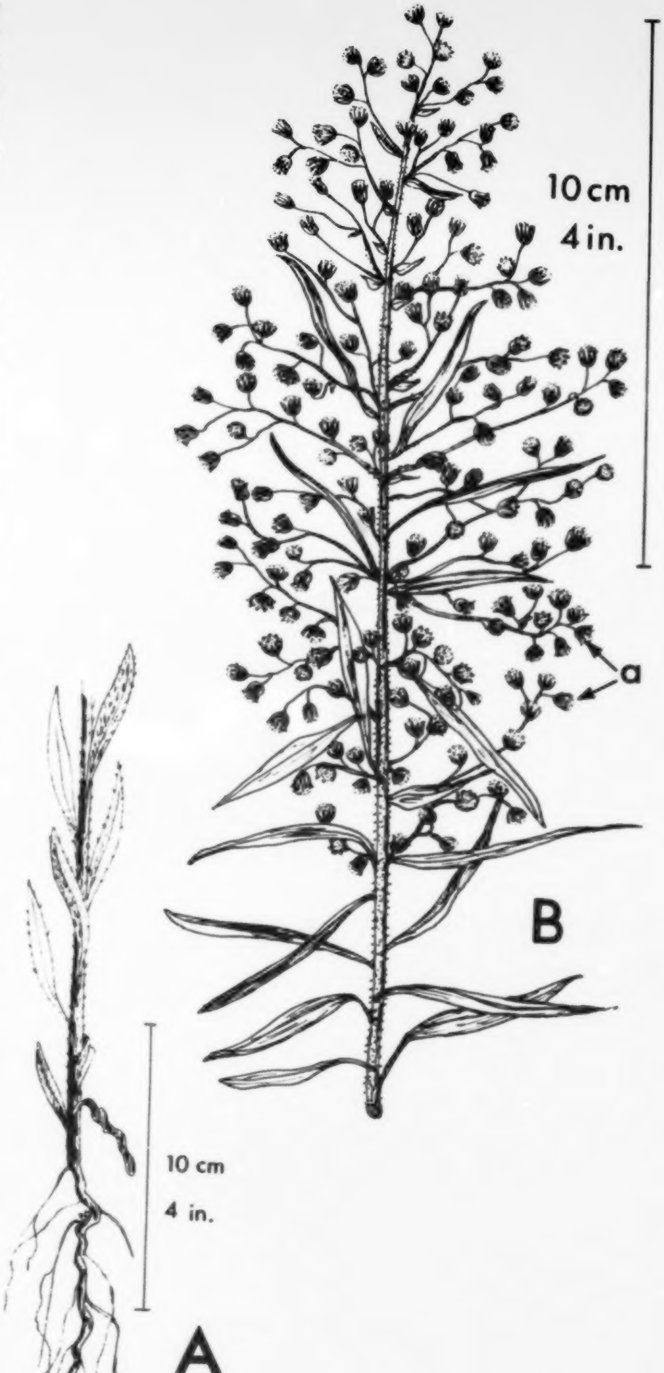


Figure 159. **Canada fleabane** A. Base of plant. B. Top of flowering stem.

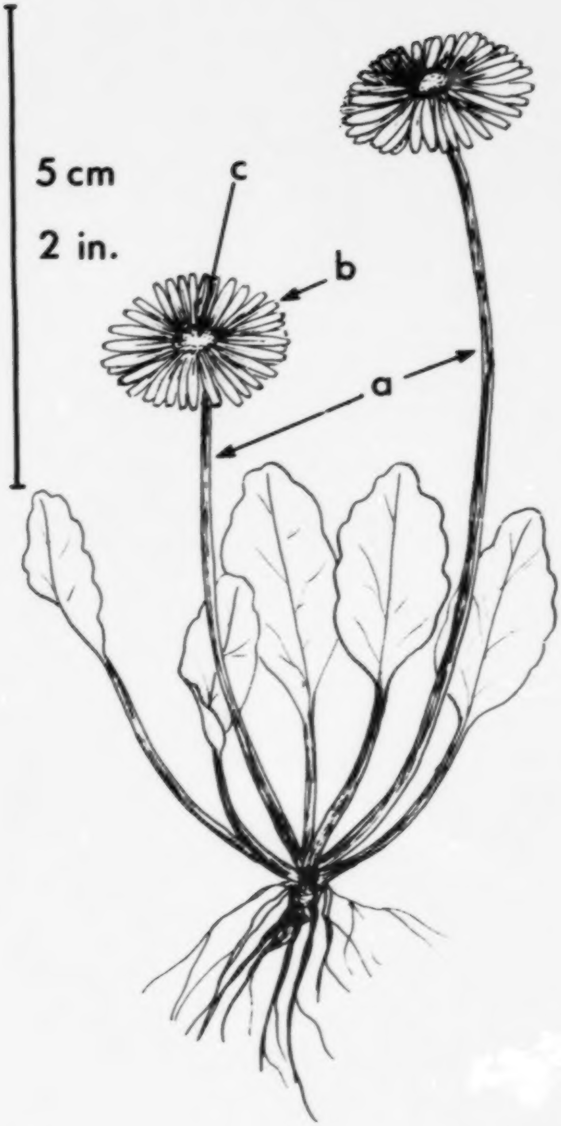


Figure 160. English daisy

**English daisy**, *Bellis perennis* L., (Figure 160) [paquerette vivace, Daisy, White daisy] Perennial, reproducing only by seed. Leaves all in a basal rosette, arranged horizontally or nearly upright, short- to long-stalked, elliptic to ovate, tapering to the stalk, shallowly but irregularly toothed with rounded or small sharp teeth; flower heads (see page 153) on slender leafless stalks (a) raised 5 – 15 cm (2 – 6 in.) above the leafy base, showy, 2 – 4 cm (⅘ – 1½ in.) across, ray florets (b) numerous and white to purplish; disk florets (c) numerous, densely packed, yellow. Flowers from June to August.

English daisy occurs in scattered localities throughout southern Ontario where it may become a dense weed in lawns, roadsides and waste places. It is distinguished by not having a leafy stem but only a rosette of basal leaves and a short, thin, leafless stalk (a) supporting a bright showy flower head with white to purplish ray florets (b) and a yellow center (c).

**Low cudweed**, *Gnaphalium uliginosum* L., (Figure 161) [gnaphale des vases] Annual, reproducing only by seed. Stems much-branched, 5 – 25 cm (2 – 10 in.) high, densely fine-hairy to woolly; leaves alternate (1 per node) but numerous and appearing tufted (a) near the tips of branches, narrow and linear or a little wider near the tip, hairy, gray-green. Flower heads (see page 153) (b) very small and crowded in small clusters near the ends of the branches and in axils of leaves, whitish to light brownish-green to straw-colored, without ray florets; involucral bracts (c) tiny, thin, papery, tan or light brownish. Flowers from July to late autumn.

Low cudweed occurs throughout Ontario in low, moist, or poorly drained situations in meadows, pastures, depressions in cultivated fields, streams, valleys and roadside ditches. It often forms dense patches in depressions in grainfields where it can tolerate poorly drained conditions better than most cultivated plants.

**Pearly everlasting**, *Anaphalis margaritacea* (L.) Benth. & Hook., (not illustrated) [anaphale perlée], closely related to Low cudweed. It differs by being perennial with stems up to 30 – 90 cm (1 – 3 ft) high, leaves larger with white-woolly undersurfaces but usually deeper green above, and dense clusters of attractive, snowy-white flower heads, the involucral bracts surrounding each flower head (see page 153) being white, dry, papery and remain on the plant long after it is mature. For this reason, it was widely cultivated as an everlasting flower for use in dry arrangements but now occurs throughout Ontario in waste places, meadows, roadsides and occasionally edges of cultivated fields.

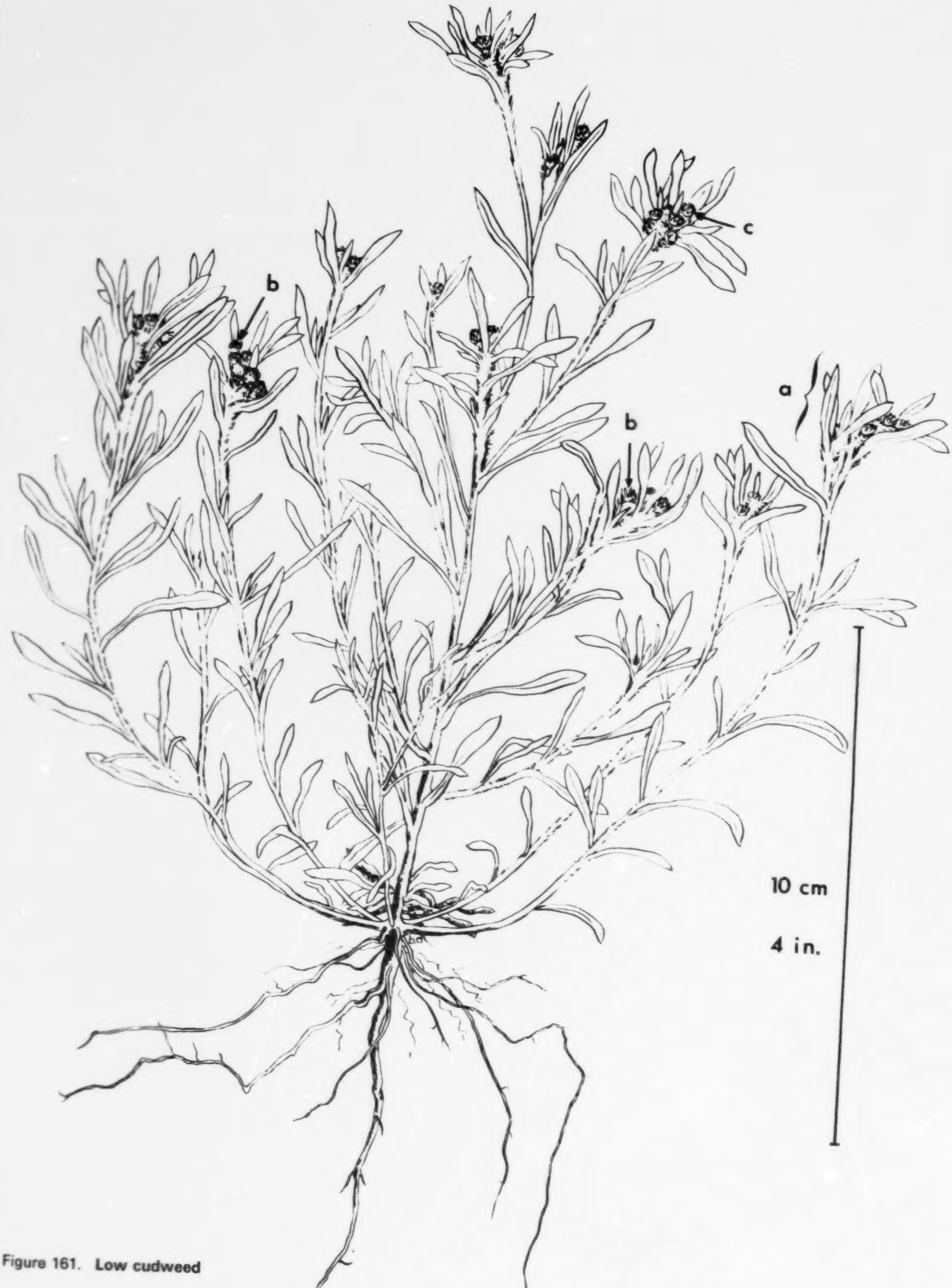

c
b
b
a
10 cm
4 in.

Figure 161. Low cudweed

**Elecampane,** *Inula helenium* L., (Figure 162) [inule aunée] Perennial, reproducing only by seed. Stems erect, mostly without branches, 1 – 2 m (3 – 6½ ft) high, coarse, finely hairy; first leaves in a basal rosette with large broad blades (A) as much as 50 cm (20 in.) long, by 20 cm (8 in.) wide, ovate with somewhat leafy-winged (a) stalks, undersurface velvety-hairy, margins finely and regularly toothed; stem leaves alternate (1 per node), similar to rosette leaves but smaller upwards on the stem, stalkless and clasping (b) the stem; flower heads (see page 153) large, showy, coarse, 5 – 8 cm (2 – 3½ in.) across; ray florets (c) many, yellow, thin, about 2 cm (⅘ in.) long; disk florets (d) many, densely crowded, dark yellowish, forming a coarse rounded center in the head; involucral bracts (e) around the base of the head broad, stiff, light green and finely hairy. Flowers during midsummer.

Elecampane occurs in southern Ontario in meadows, moist pastures, river valleys, and roadsides. It is distinguished by the rosette of large ovate, finely toothed leaves (A) with velvety hairy undersurfaces, tall erect stem with alternate leaves, upper ones clasping (b) the stem, and large, showy, coarse, yellow flower heads.

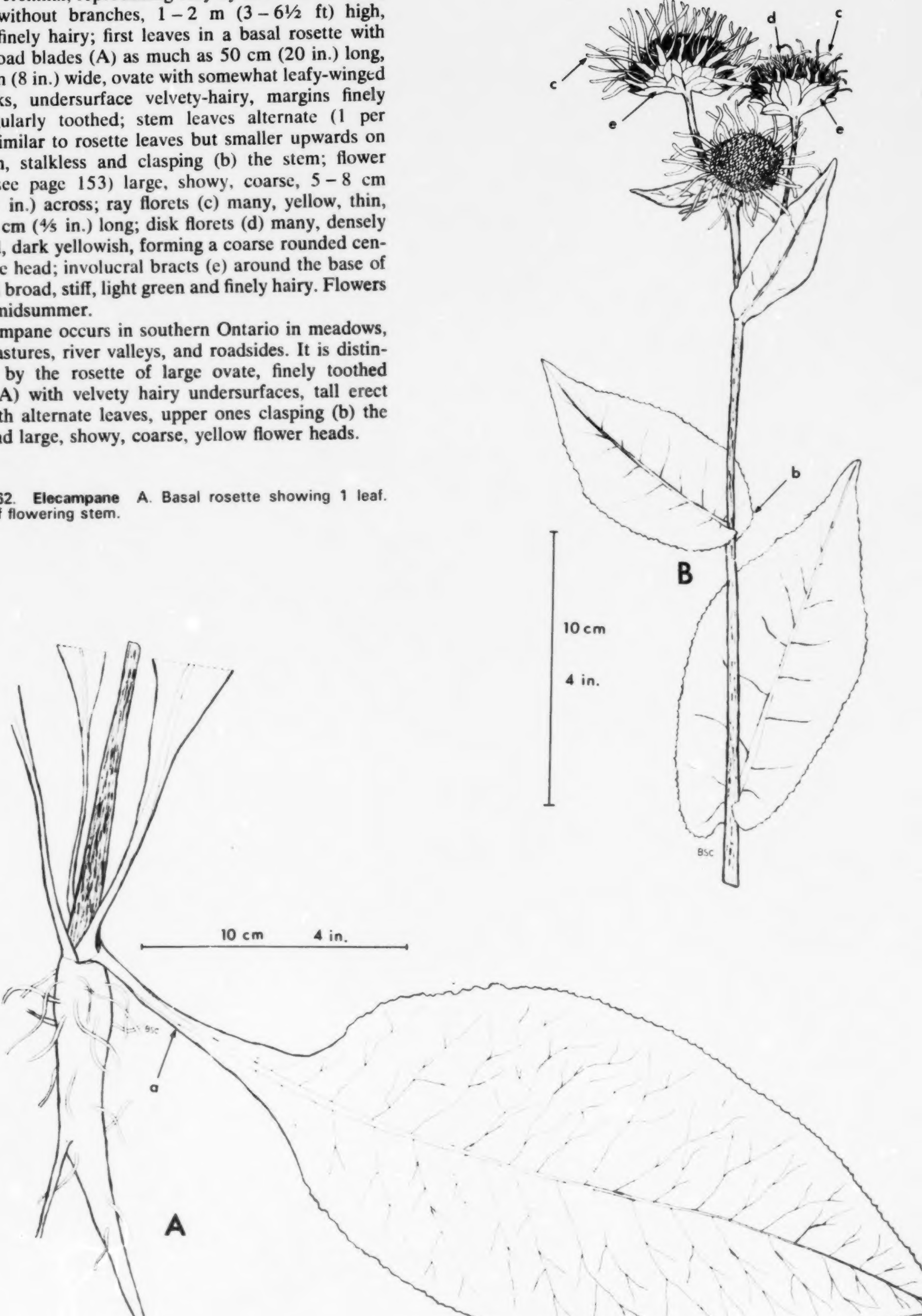
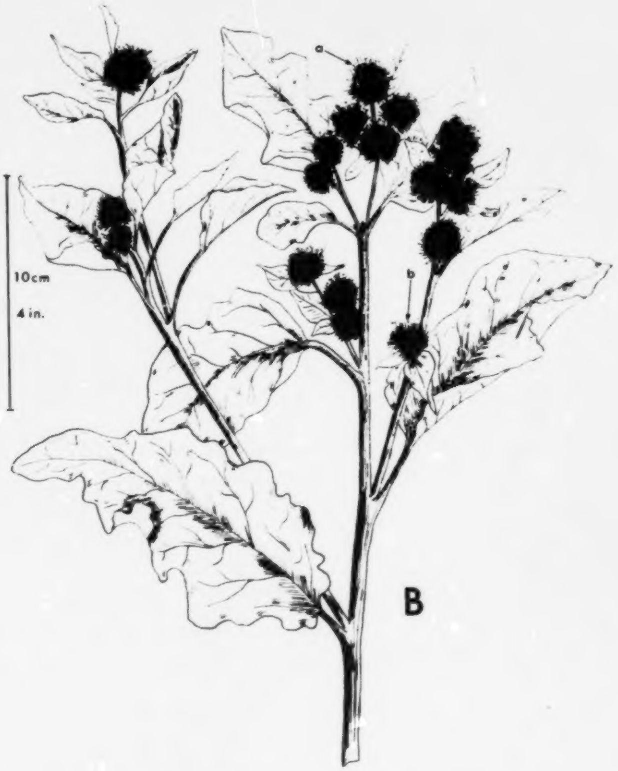


Figure 162. **Elecampane** A. Basal rosette showing 1 leaf. B. Top of flowering stem.

**Common burdock**, *Arctium minus* (Hill) Bernh., (Figure 163) [petite bardane, Burdock, Burs, Clotbur, Lesser burdock, Wild burdock, Wild rhubarb] Biennial, reproducing only by seed. Stems erect, 60 – 180 cm (2 – 6 ft) high, often widely branched, thick, hollow, grooved lengthwise; first leaves in a basal rosette (A), becoming large (up to 50 cm, 20 in. long, and 30 cm, 12 in. wide), with heart-shaped base, coarse, resembling a clump of cultivated rhubarb, but the undersides of the leaf blades are white woolly and the stout leafstalks are hollow; lower leaves on the stem of second-year plants similar to basal leaves, smaller, alternate (1 per node); middle and upper leaves gradually smaller with shorter, slender stalks and the blade tending to be less heart-shaped and more pointed towards both ends, especially among the flower heads; flower heads (see page 153) globular, numerous throughout the plant but borne singly on short stalks or in small clusters at ends of branches and from axils of leaves; each head about 2 cm (⅘ in.) diameter, densely covered with purplish, hooked bristles (a); ray florets absent; disk florets (b) purple or occasionally white, closely packed in the center of the head; at maturity the head easily breaks off its stalk and clings to clothing and animal fur, gradually scattering the brownish angular seeds, each about 6 mm (¼ in.) long. Flowers from July to September.

Common burdock occurs throughout Ontario in waste places, pastures, open woods, roadsides, fencerows and barnyards but seldom in cultivated land. It is distinguished by the rosette of very large heart-shaped leaves resembling Rhubarb but woolly on the undersurface and with hollow leafstalks; tall, branched stem in the second year with many short-stalked flower heads densely covered with hooked spines (a) and borne singly or in small clusters at ends of stems and from leaf axils.

**Great burdock**, *Arctium lappa* L., (not illustrated) [grande bardane, Large burdock], very similar to Common burdock, differing from it by having solid leafstalks in the lower part of the plant, larger flower heads (usually over 2.5 cm, 1 in. across) on longer stalks and arranged in flat-topped clusters rather than scattered along the stems. Great burdock is found in a few localities in southern Ontario along roadsides, fence lines, waste places and river meadows.



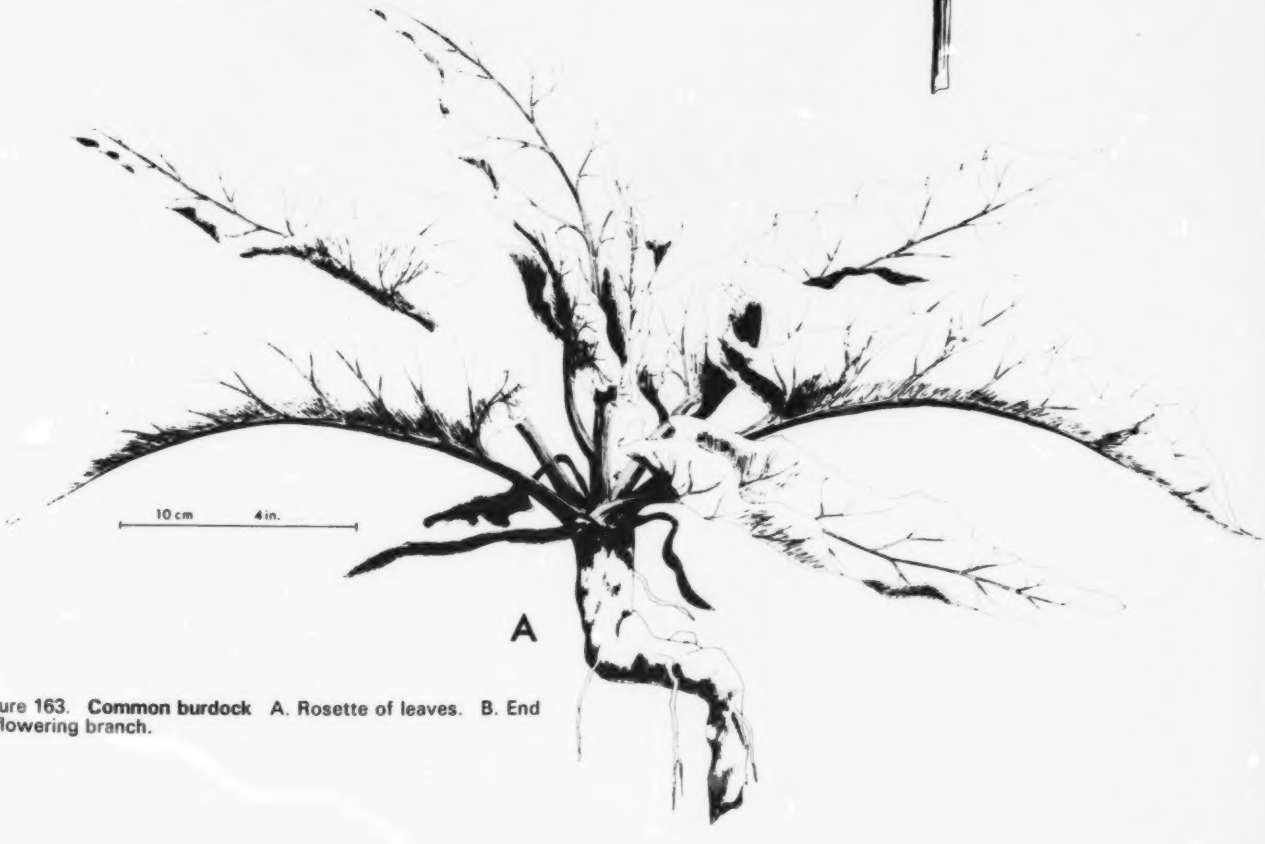


Figure 163. **Common burdock** A. Rosette of leaves. B. End of flowering branch.

**Nodding thistle,** *Carduus nutans* L., (Figure 164, Plate 47, left) [chardon penché, Musk thistle] Biennial, reproducing only by seed. Stems of second-year plants erect, 30 – 180 cm (1 – 6 ft) high, with harshly spiny, irregularly lobed, leaflike wings (a) running lengthwise on all stems and branches except just below each flower head; first-year plants forming a large, circular, nearly flat rosette (A), each leaf often 30 cm (12 in.) long by 10 cm (4 in.) wide, bright green to gray-green, margins deeply lobed, the lobes close together, twisted and wavy, with long, sharp spines pointing in all directions; the actual surface of the leaf blade and its lobes (apart from the harshly spiny margins) finely woolly-hairy and soft to the touch on both upper and lower surfaces; stem leaves of second-year plants similar to rosette leaves but gradually smaller and less lobed upwards, alternate (1 per node); flower heads (B) (see page 153) single on slender, smooth, long, bare (not spiny-winged) stalks (b) at ends of branches (Plate 47, left) and from axils of upper leaves, each head large, 4.5 – 7 cm (2 – 2½ in.) across, with no ray florets but with many, large, bright purple disk florets (c), these surrounded by an involucre of many, overlapping, broad-based, greenish bracts with outward- or backward-pointing, long, sharp spiny tips (d); heads at ends of stems and branches usually bent to one side ("nodding" as in Figure 164 B and Plate 00, left) those from leaf axils often nearly erect; seeds light brown, shiny, 4 mm (⅙ in.) long, egg-shaped with a small knob at the tip. Flowers from June to October.

Nodding thistle is common throughout southern Ontario in pastures, waste places, roadsides and around buildings, especially on coarse-textured soils. Flowering plants are distinguished by large, showy, bright purple flower heads (Plate 47, left) surrounded by an involucre of broad-based bracts narrowed to long, sharp, outward- or backward-pointing spiny tips (d); heads nodding on long, non-winged stalks (b) at ends of stems or upright in leaf axils; nonflowering plants and first-year rosettes are distinguished by deeply lobed, bright green to gray-green leaves, the lobes much twisted, wavy and spiny margined, both upper and lower surfaces (apart from the spiny margins) always finely woolly-hairy and soft to the touch. Plants which seem to be intermediate between Nodding thistle and Plumeless thistle may be hybrids between these two species.

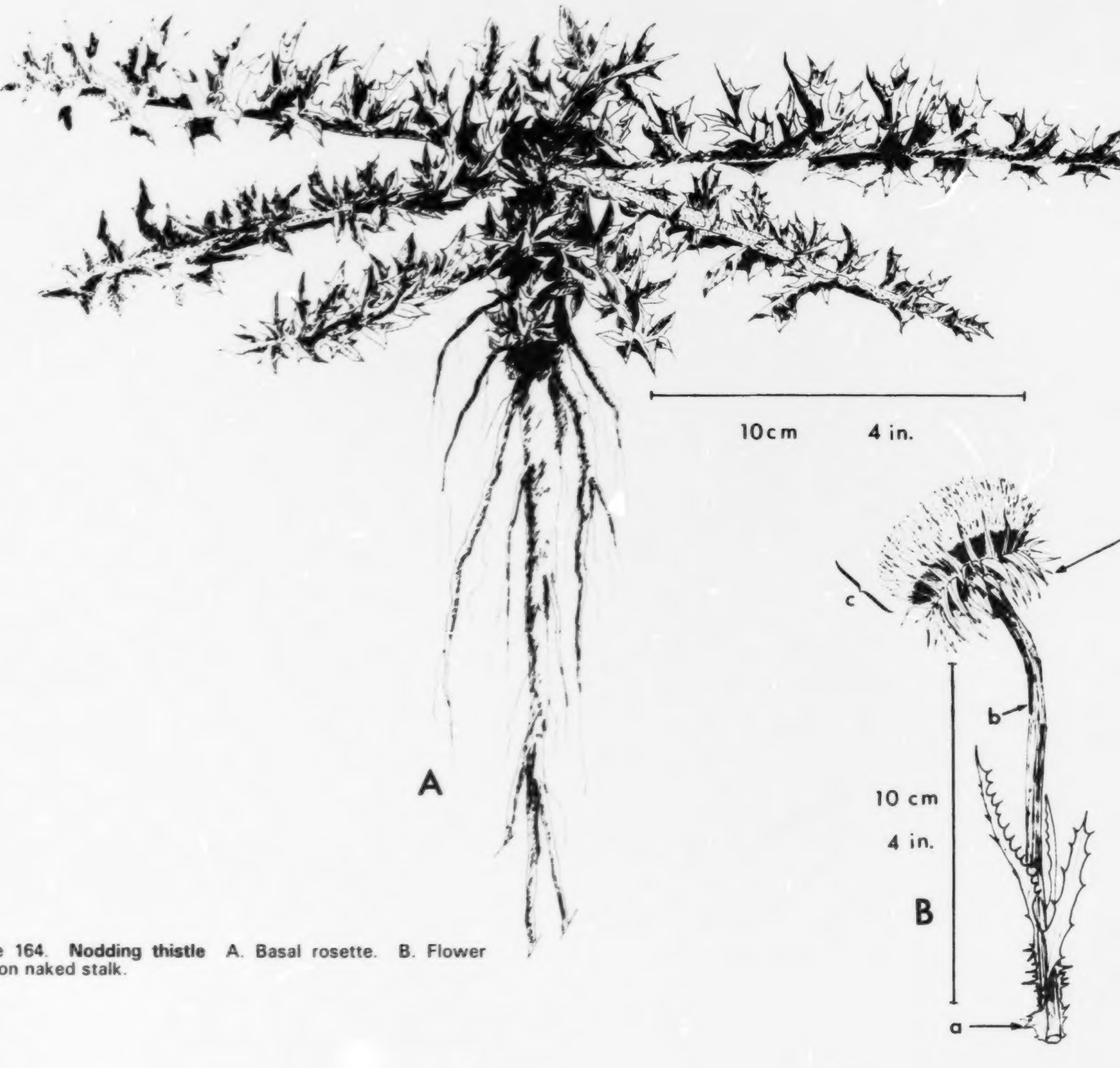


Figure 164. **Nodding thistle** A. Basal rosette. B. Flower head on naked stalk.

**Plumeless thistle,** *Carduus acanthoides* L., (Figure 165) [chardon épineux, Welted thistle] Very similar to Nodding thistle but distinguished by having leaves usually with distinct spaces (sinuses) (a) between the clusters of twisted and wavy lobes (b), the inner margins of these spaces usually with smaller and fewer spines than on the lobes; flower heads (c) smaller (usually less than 2.5 cm, 1 in. wide) and clustered or sometimes solitary but on shorter stalks which are spiny-margined right to the base of the head (d). Plumeless thistle occurs throughout southern Ontario in similar habitats to Nodding thistle and, where the two occasionally grow in the same locality, hybrids are often produced having characteristics intermediate between the two species.

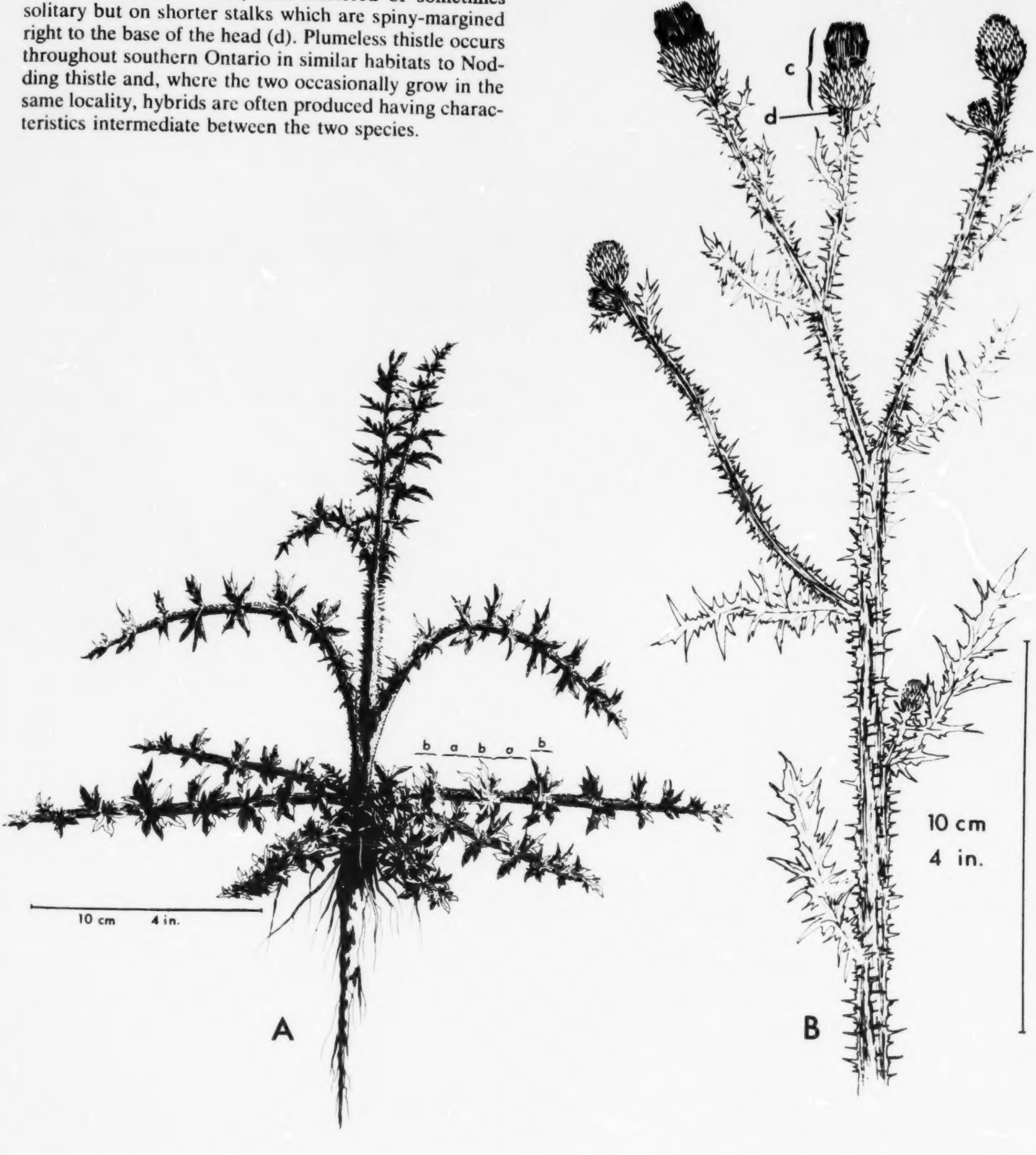
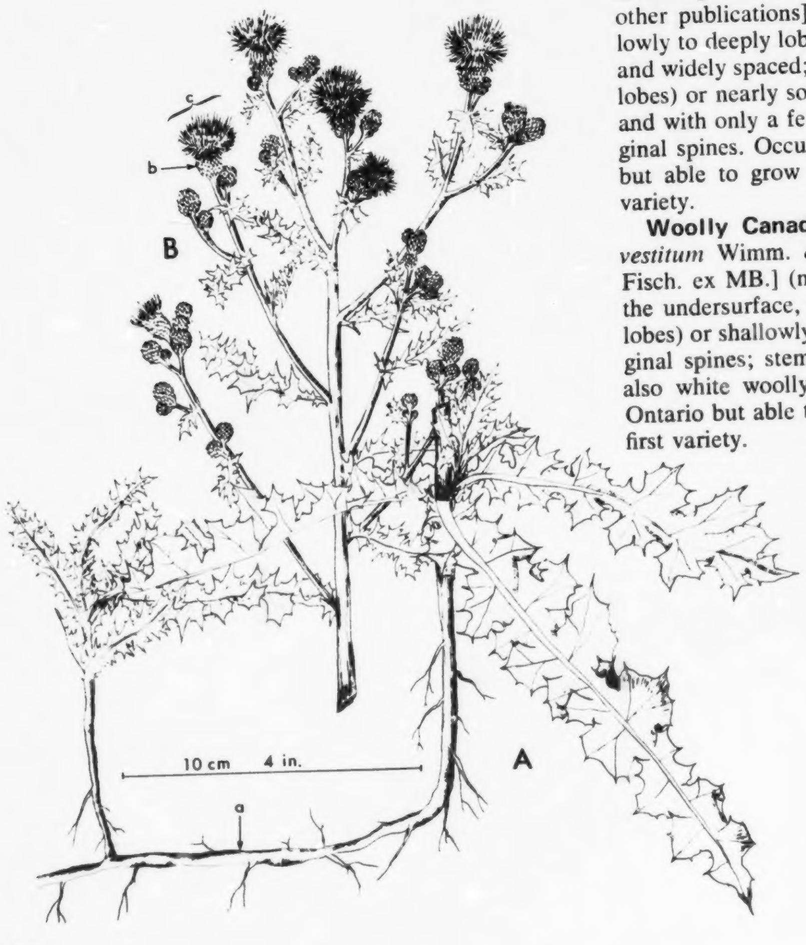


Figure 165. **Plumeless thistle** A. Rosette and lower stem leaves. B. Flowering branch.

**Canada thistle,** *Cirsium arvense* (L.) Scop., (Figure 166, Plate 47, right) [chardon des champs, Canadian thistle, Creeping thistle, Field thistle] Perennial, reproducing by seed and by horizontal roots (a) which produce new shoots, often forming dense patches. Stems erect, 30 – 150 cm (1 – 5 ft) high, usually branched, slender, smooth or occasionally with a few, narrow, spiny-margined leaf-like wings on the lower part; leaves more or less lobed and spiny, alternate (1 per node), elliptic to oblong in outline, stalkless and often clasping the stem; the distinct variations in lobing, spininess, hairiness, texture and color of leaves being the characteristics for classification into the 4 botanical varieties described below; flower heads (see page 153) numerous, comparatively small, 5 – 15 mm (⅕ – ⅗ in.) wide and about twice as long, the involucral bracts (b) weakly spiny or almost smooth; ray florets absent but disk florets (c) prominent with purplish or sometimes white corollas; plants unisexual; although stamens and stigmas are sometimes present in the same flower, the flowers are functionally unisexual, all the flowers in 1 head and all the heads on 1 plant being either male or female; heads with male (pollen-producing) flowers somewhat shorter and narrower than heads with female (seed-producing) flowers; seeds light brown or straw-colored, smooth, 2.5 – 4 mm (1/10 – 1/6 in.) long. Flowers from June to late autumn.

Figure 166. **Canada thistle** A. Horizontal root with 2 above-ground shoots. B. Flowering stem.



Four botanical varieties of Canada thistle occur in Ontario. They are distinguished by differences in leaf characteristics. Common names have not gained general acceptance for them but descriptive terms are applicable as follows:

**Spiny Canada thistle,** *Cirsium arvense* (L.) Scop. var. *horridum* Wimm. & Grab., [typical *C. arvense* var. *arvense* in some other publications] (Figure 166, Plate 47, right), leaves deeply and uniformly lobed along each side; the lobes pointed, twisted and wavy with many long, stiff, stout yellowish spines sticking out in all directions from their margins; the whole blade firm, stiff, mostly hairless and bright green to slight yellowish-green. This is by far the most common variety, occurring throughout Ontario in grainfields, pastures, meadows, woodlands, waste places, roadsides, gardens and lawns in all soil textures and in saline (alkaline) soils as well as rich fertile soils. Plate 47 shows both color forms of this variety, male (pollen-producing) (C) and female (seed-producing) (D) plants of the purple-flowered form and a male (E) of the white-flowered form.

**Entire-leaved Canada thistle,** *Cirsium arvense* L. var. *integrifolium* Wimm. & Grab., [*C. setosum* (Willd.) MB.] (not illustrated), all leaves entire (without teeth or lobes), thin and flat, or the upper ones entire and only the lower ones shallowly and uniformly lobed or wavy-margined, with only a few short (3 mm, ⅛ in.), slender marginal spines, hairless and green to rather dark green. Occurs in only a few localities in Ontario but able to grow in most habitats listed for the first variety.

**Gentle Canada thistle,** *Cirsium arvense* L. var. *arvense* [*C. arvense* L. var. *mite* Wimm. & Grab. in some other publications] (not illustrated), lower leaves shallowly to deeply lobed, the lobes often of unequal length and widely spaced; upper leaves entire (without teeth or lobes) or nearly so, all leaves thin, flat, hairless, green, and with only a few short (3 mm, ⅛ in.), slender marginal spines. Occurs in only a few localities in Ontario but able to grow in most habitats listed for the first variety.

**Woolly Canada thistle,** *Cirsium arvense* L. var. *vestitum* Wimm. & Grab., [*C. incanum* S. G. Gmel. Fisch. ex MB.] (not illustrated), leaves gray-woolly on the undersurface, green above, entire (without teeth or lobes) or shallowly lobed, flat and with a few weak marginal spines; stems and stalk below each flower head also white woolly. Occurs only in a few localities in Ontario but able to grow in most habitats listed for the first variety.

All four varieties of Canada thistle are distinguished from other thistles in nonflowering stages by their perennial habit reproducing from spreading underground roots (a), the absence of a distinct circular rosette of basal leaves, their mostly non-winged stems with generally slender stature, and the absence of prickles from the surface of the leaf blades (apart from spines along the margins); flowering stages are distinguished by their generally smaller flower heads, mostly less than 25 mm (1 in.) long and 15 mm (⅗ in.) wide, these unisexual, and the involucral bracts (b) surrounding each head either without spiny tips or with very short weak ones.

**Bull thistle**, *Cirsium vulgare* (Savi) Tenore., (Figure 167, Plate 47 B and front cover) [chardon vulgaire, Spear thistle] Biennial, reproducing only by seed. Stems erect, 30 – 150 cm (1 – 5 ft) high, rarely much taller, usually widely branched, short-hairy, middle and upper portions with narrow, very spiny leaf-like wings running lengthwise (a), lower portion of small slender stems spiny-winged, the wing drying and disappearing as the stem gets thicker and woody (b); leaves in a large, flat basal rosette during the first year, each leaf deeply lobed, the lobes usually grouped in 2's or 3's together (c, D) along each side of the leaf with distinctly unlobed portions (d) between them, with long (about 1 cm, ⅖ in.), hard, sharp spines (e) from the tips of each lobe and smaller spines along the margins; undersurface light green, finely woolly-hairy and soft to the touch; upper surface dark green, with closely spaced, short, sharp prickles (f) and very prickly to the touch; stem leaves similar to rosette leaves but smaller upwards on the stem, alternate (1 per node), flower heads (see page 153) erect at tips of branches, large, 2.5 – 7.5 cm (1 – 3 in.) across, without ray florets but with long purplish disk florets (g) and surrounded by an involucre (h) of many, overlapping, very narrow, outward-pointing green bracts, each tipped with a firm, yellowish spine (j); seeds about 4 mm (⅙ in.) long, grayish-brown with darker lines, shiny, the hair at tip of seed (pappus) long and branching feather-like (C). Flowers from July to September.

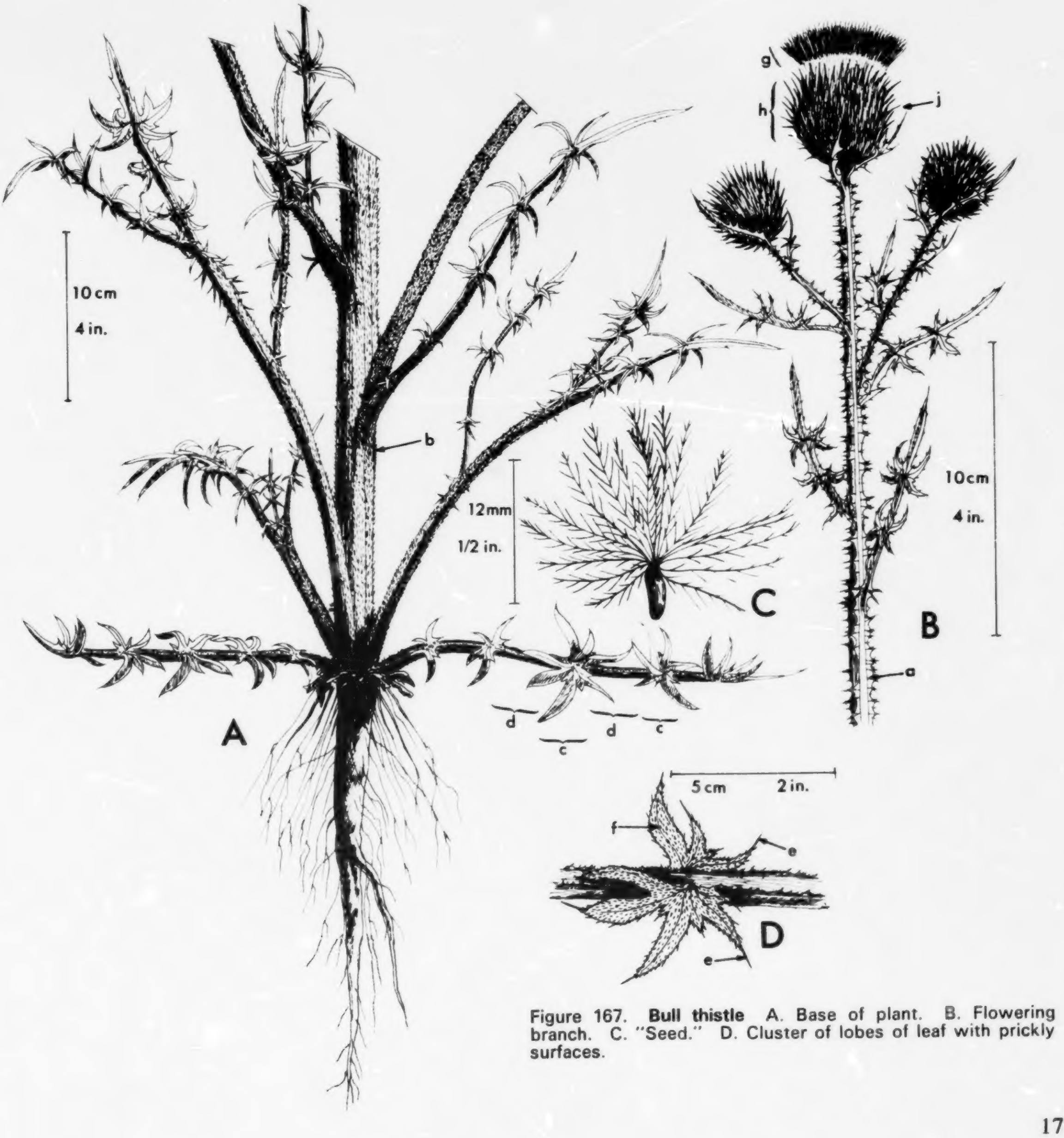


Figure 167. **Bull thistle** A. Base of plant. B. Flowering branch. C. "Seed." D. Cluster of lobes of leaf with prickly surfaces.

Bull thistle is common throughout Ontario in pastures, edges of woods, waste places, fence lines and roadsides; its rosettes are occasionally troublesome in lawns and gardens. It is distinguished from all other thistles by the covering of short sharp prickles (f) on the upper, dark green surface of the leaf blade, these prickles (apart from the obvious spines along the margins and tips of the lobes) make the surface very harsh to the touch. Its purple flower heads are larger than Canada thistle, and the involucral bracts (h) surrounding the heads are more slender and usually more numerous than in Nodding thistle or Plumeless thistle.

**Scotch thistle,** *Onopordum acanthium* L., (Figure 168, Plate 43) [acanthe sauvage, Cotton thistle, White thistle] Biennial or sometimes annual, reproducing only by seed. Stems erect, tall, 1 – 2.4 m (3 – 8 ft) high, branched, densely white woolly with broad, spiny, leaf-like wings (a); leaves of first-year rosette (A) large (to 60 cm, 24 in. long and 30 cm, 12 in. wide), lobed or coarsely toothed, densely white woolly (like a felt insole), margins wavy and spiny; stem leaves similar but smaller, alternate (1 per node), the margins of the leaf blades usually continuing down the stem as wings (a); flower heads (see page 153) at ends of branches and from leaf axils, large, 2.5 – 5 cm (1 – 2 in.) across, nearly spherical; ray florets absent; disk florets (b), numerous, purple, showy; head surrounded by numerous, overlapping, narrow, spine-tipped involucral bracts (c); seeds about 5 mm (⅕ in.) long, light brownish-gray to dark gray and wrinkled crosswise. Flowers from late June to September.

Scotch thistle occurs in scattered localities throughout southern Ontario in waste places, fence lines, and around old buildings, usually in gravelly soils where it has escaped from cultivation. It is distinguished from all other thistles in Ontario by the very dense, white woolly covering on stems and leaves.

**Globe thistle,** *Echinops sphaerocephalus* L., (not illustrated) [boulette commune] and **Milk thistle,** *Silybum marianum* (L.) Gaertn., (not illustrated) [chardon Marie, Blessed thistle, Lady's thistle, Marian thistle], were also introduced for cultivation as ornamentals but have frequently escaped to roadsides, fence lines and waste places. Globe thistle, a perennial without creeping roots, produces 1 to several tall leafy stems resembling Bull thistle, but its leaves are brighter green on the upper surface and whitish below, less spiny on the margins and harshly hairy but without prickles on the upper surface; with glandular (sticky) hair on leaves and upper stems; and its flower heads (see page 153) are globe-shaped or spherical with white to light blue to purplish-blue florets. Milk thistle, a winter annual or biennial, at first produces a large rosette with large, broad, spiny-lobed leaves, the upper surfaces of which are dark green and distinctively mottled with light green to nearly white along the midrib and principal branching veins (hence "milk" in the English name); stem leaves similar to rosette leaves but smaller, the upper ones stalkless and strongly clasping the stem; flower heads (see page 153) large with fewer involucral bracts having very broad bases and slender, long tips; and large (7 mm, ¼ in. long) dark brown seeds.

**Spotted knapweed,** *Centaurea maculosa* Lam., (Figure 169) [centaurée maculée] Biennial or short-lived perennial, reproducing only by seed. Stems erect, much-branched, 20 – 180 cm (8 – 72 in.) high, greenish or purplish striped; leaves in a basal rosette the first year, compound (pinnately divided) (D) with several simple (not lobed) or irregularly lobed leaflets (a) widely spaced along each side, the margins of each leaflet smooth or toothed; basal leaves long-stalked (b), with scattered, tiny, round, shining glands embedded in both upper and lower surfaces and a few translucent dots through the blade; lower and middle stem leaves (B) similar to those

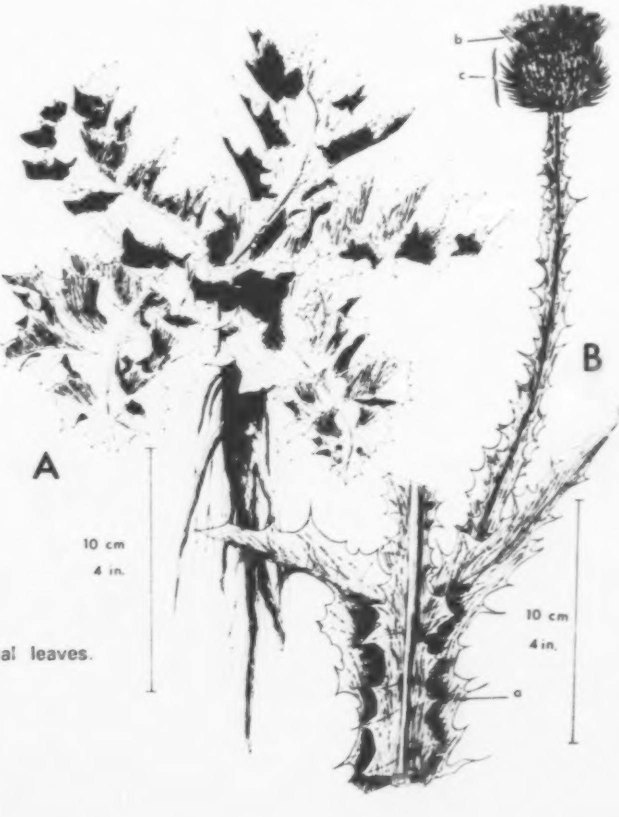


Figure 168. **Scotch thistle** A. Rosette of basal leaves. B. Branch with flower head.

of the rosette but smaller with shorter stalks, alternate (1 per node); upper leaves small, narrow, stalkless, simple (c) or with a few small lobes (d); flower heads (see page 153) small, erect on slender stiff branches, hard; ray florets absent; flower heads consisting only of many rosy, purplish disk florets; the corolla of each floret ending in 5 long slender lobes (e); the outer florets (e) longer than the central ones (f); the head surrounded by an involucre of small, somewhat dry and membranous bracts (g, C), each bract (C) ovate with a distinct brownish-black tip (h) ending in a fine fringe (j) like the teeth of a comb. Flowers from July to September.

Spotted knapweed occurs throughout Ontario but is most common in the southern part of the province, especially in Grey and Hastings Counties. It is distinguished by its pinnately divided rosette and lower stem leaves, the leaves slightly woolly, with tiny shining glands in both surfaces visible to the naked eye as shiny specks and with a few translucent dots visible as pinpricks through the leaf blade when viewed against the light, and by its showy rosy-purple flower heads surrounded by involucral bracts (g, C) with dry and membranous brownish-black tips (h) fringed (j) like the teeth of a comb.

**Black knapweed**, *Centaurea nigra* L., (Figure 170) [centaurée noire] Perennial, reproducing only by seed. Similar to Spotted knapweed in general habit and appearance; differing from it by having smooth (a) or undivided, irregularly toothed, somewhat rough-hairy leaves (b), and the involucral bracts (c, C) surrounding the flower heads having a narrow basal portion (d) and a broad, fringed, outer or tip portion (e), this outer portion and its comb-like fringes (f) dark brown to blackish (rarely light brown); the tips of the innermost bracts next to the florets sometimes just flared but not fringed. Flowers from late June to October.

Black knapweed occurs throughout southern Ontario in pastures, meadows, fence lines, roadsides and waste places.

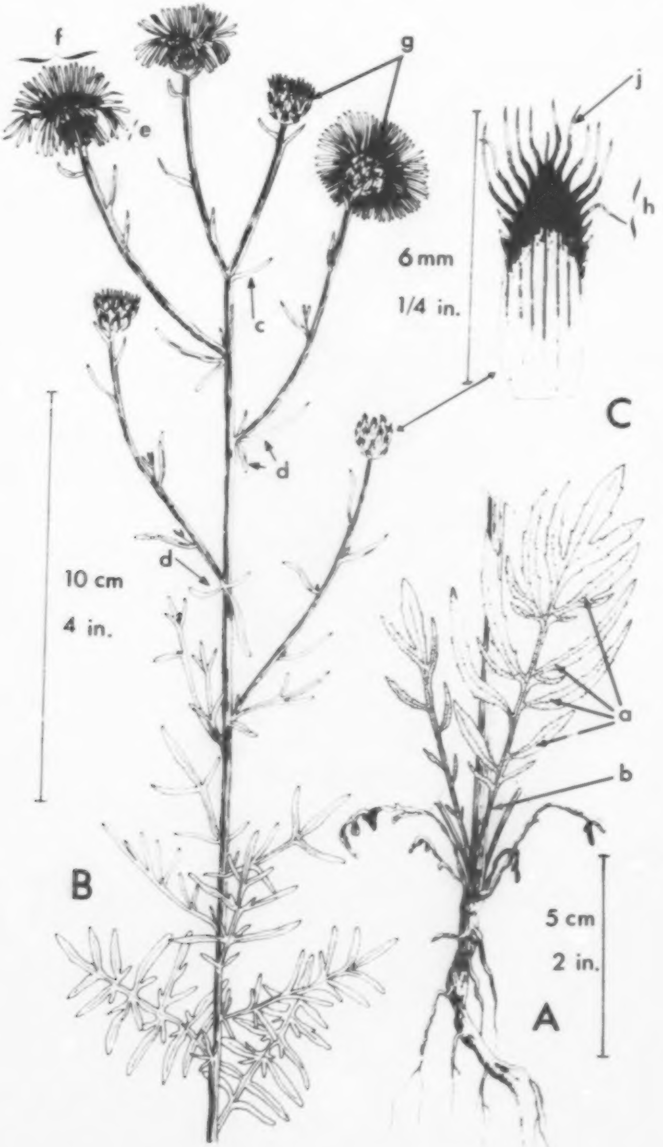


Figure 169. **Spotted knapweed** A. Base of plant. B. Stem with flower heads. C. 1 involucral bract.

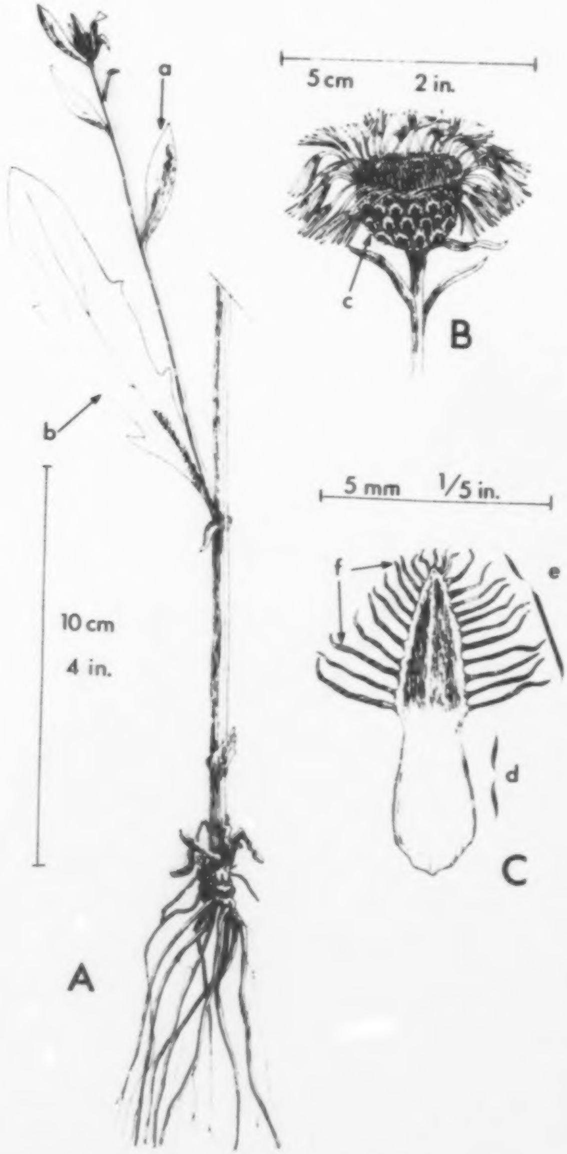


Figure 170. **Black knapweed** A. Lower part of plant. B. 1 flower head. C. 1 involucral bract.

**Brown knapweed**, *Centaurea jacea* L., (Figure 171) [centaurée jacée, Common knapweed, Star-thistle] Perennial, reproducing only by seed. Similar to Spotted knapweed in habit and general appearance; differing from it by having simple, undivided, but irregularly toothed, somewhat rough-hairy leaves (A, B, C); and by having the involucral bracts surrounding the flower head light brown, with the upper half of each bract (D) expanded or flared out and torn into irregular divisions rather than fringed like the teeth of a comb. Flowers from June to September.

Brown knapweed occurs chiefly in the western half of southern Ontario where it is sometimes very common in pastures, roadsides and waste places.

**Russian knapweed**, *Centaurea repens* L., (not illustrated) [centaurée de Russie] Perennial, but differs from other perennials by reproducing both by seed and from deeply penetrating, widely spreading, dark brown or black roots which can form extensive patches and be extremely difficult to eradicate once established. It is a finer, more slender plant than the other knapweeds, with narrow, undivided but shallowly, irregularly toothed leaves; stems and leaves covered with a white woolly knap which peels off in strips as the stems get older; flower heads (see page 153) small (1 – 1.5 cm, ⅖ – ⅗ in. across), silvery-green before opening; ray florets absent; disk florets pinkish to light purplish; involucral bracts with a papery tip which is neither fringed nor irregularly divided. Flowers from July to September.

Russian knapweed occurs in cultivated fields and pastures in the central part of southern Ontario. It is distinguished by its ability to reproduce from deeply penetrating and widely spreading roots, these with dark brown to black bark, its gray-green stems and undivided leaves, its small flower heads with silvery-green involucral bracts which are not fringed at the tip, and by the extremely persistent bitter taste of its stem and the inner parts of its roots.

**Yellow devil hawkweed**, *Hieracium floribundum* Wimm. & Grab., (Figure 172) [épervière a fleurs nombreuses, Yellow hawkweed] Perennial, reproducing by seed and by leafy stolons (runners) (a) and forming dense patches of rosette plants. Leaves in a basal rosette on a short, stout, upright, underground rhizome; leaves narrowly elliptic or wider towards the tip, 2.5 – 14 cm (1 – 5½ in.) long, gray-green, with long stiff hair on both surfaces, especially along the underside of the midrib; horizontal leafy stolons (a) produced at about flowering time, usually rooting near the ends (b) and with leaves similar to but smaller than those of the main rosette; flowering stems (B) erect, 20 – 80 cm (8 – 32 in.) high, leafless or with 1 or 2 small leaves near the base, hairy with scattered, long, stiff, often blackish hair; flower heads (see page 153) arranged in a loose, open,

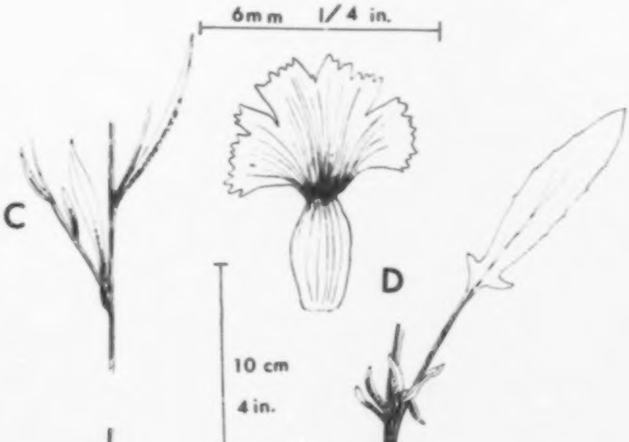


Figure 171. **Brown knapweed** A. Base of plant. B. Leaf and short branch at mid-stem. C. Leaves at top of stem. D. 1 involucral bract.

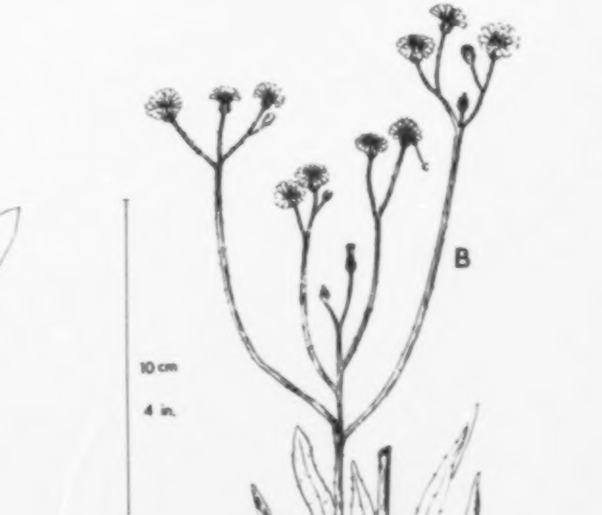


Figure 172. **Yellow devil hawkweed** A. Base of plant with 2 leafy stolons. B. Flowering stem.

more or less flat-topped inflorescence, each head containing only ligulate (strap-shaped) florets, bright yellow, 7 – 8 mm (¼ – ⅓ in.) across when fully open and surrounded by an involucre of slender bracts (c) covered with short, blackish, usually gland-tipped hair; all parts with white milky juice. Flowers from late June to August.

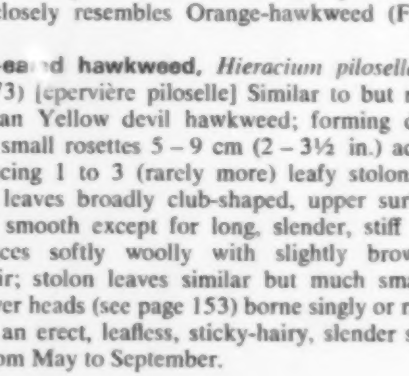
Yellow devil hawkweed occurs throughout Ontario, being most common in the south in pastures, meadows, waste areas and roadsides. It is distinguished by horizontal leafy stolons (a) produced at flowering time and rooting near the tip (b), leaves with long hairs on the upper surface and along the midrib below, and yellow flower heads in a loose, more or less flat-topped inflorescence.

**King devil hawkweed**, *Hieracium florentinum* All., (not illustrated) [épervière des Florentins, Yellow hawkweed], very similar to Yellow devil hawkweed, differing from it by having no horizontal leafy stolons (runners) but instead producing upright secondary flowering stems after the flower heads on the main stem have begun to open, and slightly larger flower heads, 10 – 11 mm (⅖ in.) across when fully open. It occurs mainly in southern Ontario in similar habitats and often mixed with Yellow devil hawkweed.

**Yellow hawkweed**, *Hieracium pratense* Tausch, (not illustrated) [épervière des prés], resembling both Yellow devil hawkweed and King devil hawkweed but is distinguished by having the flower heads in a compact, flat-topped cluster, each head 10 – 11 mm (⅖ in.) across and the involucre blackish due to numerous black gland-tipped hairs; having short bristly hair together with tiny branched hair requiring magnification to be seen on both upper and lower leaf surfaces; and occasionally producing short, horizontal, leafy stolons. Its distribution is similar to the two previous hawkweeds. Except for flower color, it closely resembles Orange-hawkweed (Figure 174).

**Mouse-eared hawkweed**, *Hieracium pilosella* L., (Figure 173) [épervière piloselle] Similar to but much smaller than Yellow devil hawkweed; forming dense masses of small rosettes 5 – 9 cm (2 – 3½ in.) across, and producing 1 to 3 (rarely more) leafy stolons (a) (runners); leaves broadly club-shaped, upper surfaces green and smooth except for long, slender, stiff hair; undersurfaces softly woolly with slightly brownish matted hair; stolon leaves similar but much smaller; yellow flower heads (see page 153) borne singly or rarely 2 or 3 on an erect, leafless, sticky-hairy, slender stem. Flowers from May to September.

Figure 173. Mouse-eared hawkweed



Mouse-eared hawkweed occurs in southern Ontario in pastures, waste areas, roadsides and occasionally lawns, usually in poor, shallow soils in rocky or gravelly situations.

**Orange hawkweed**, *Hieracium aurantiacum* L., (Figure 174, Plate 38) [épervière orangée, King-devil] Very similar to Yellow hawkweed *(Hieracium pratense)* in size, shape and hairiness of rosette leaves, in having short, leafy stolons (runners), and a compact inflorescence; but differing by having bright, showy, orange-red to deep dark reddish-orange flower heads (see page 153). Flowers from June to September.

Orange hawkweed occurs throughout Ontario in pastures, meadows, edges of woods, roadsides and waste places in deep, rich soils as well as shallow, sandy or gravelly soils. It is readily distinguished by its showy orange-red to dark reddish-orange flower heads (Plate 38).

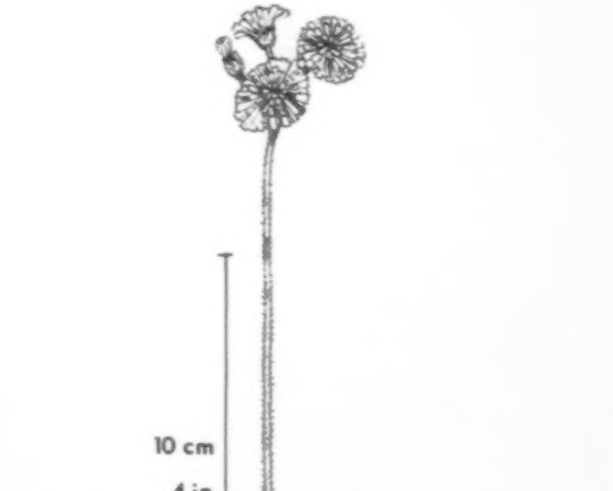


Figure 174. Orange hawkweed A. Lower portion of plant. B. Flowering stem.

**Perennial sow-thistle,** *Sonchus arvensis* L., (Figure 175) [laiteron des champs, Creeping sow-thistle, Field sow-thistle, Glandular-hairy perennial sow-thistle] Perennial, reproducing by seed and from buds (a) on widely spreading, creamy white, brittle, underground roots (b). Stems erect, 60 – 150 cm (2 – 5 ft) high, smooth and hairless on the lower part but glandular-hairy towards the top and on branches, hollow; leaves of seedling plants (A) broadly club-shaped with irregularly toothed margins, the teeth ending in weak prickles (c), remnants of the cotyledons (seed leaves) (d) often visible; leaves of shoots from perennial roots (B) variable in shape, the lower ones shallowly to deeply lobed and irregularly toothed, reminiscent of Dandelion leaves but the teeth ending in small, weak prickles, with a winged stalk (e); alternate (1 per node); middle and upper leaves similar but smaller with shorter stalks and clasping the stem with small, rounded basal lobes (f); uppermost leaves (g) small, narrow, without lobes and with only a few teeth; flower heads (see page 153) showy, bright yellow, 2.5 – 4 cm (1 – 1⅔ in.) across; all florets ligulate (strap-shaped); upper stems, branches and involucral bracts (h) surrounding the heads usually densely covered with dark hair (j); each hair with a tiny gland (k) at its tip (these hairs, when seen under magnification, resemble a tiny lollipop); seeds brown with lengthwise ridges and finer cross ridges; whole plant with sticky white juice and a rather sour odor. Flowers from June to late autumn.

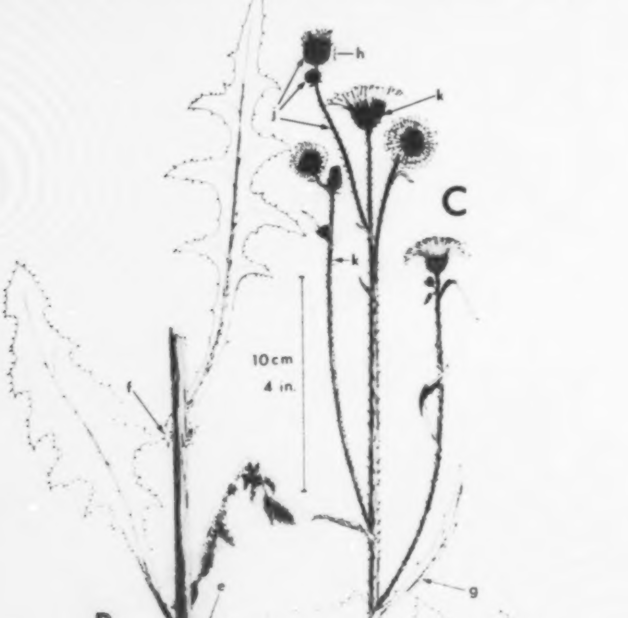


Figure 175. **Perennial sow-thistle** A. Young plant from seed. B. Base of plant from perennial root. C. Flowering stem.

Perennial sow-thistle occurs throughout Ontario in cultivated fields, pastures, meadows, woodland, waste places, roadsides, gardens and occasionally in lawns. Nonflowering plants are distinguished by their variously lobed leaves with weakly spiny teeth; by their soft, somewhat fleshy, bright green stems mostly arising directly from horizontal yellowish-white, fleshy, brittle, cord-like roots (b), these roots bearing many, small, whitish buds (a) able to grow into other new leafy stems; the whitish vertical underground portion (m) of each upright stem resembling a root, but usually not tapered downwards except in first-year plants (A) which started from seed. Flowering plants are distinguished by their showy, large, bright yellow flower heads and the covering of glandular hair (j) on the involucre (h) and the upper stems and branches.

**Smooth perennial sow-thistle,** *Sonchus arvensis* L. var *glabrescens* Guenth, Grab. & Wimm., (Plate 46) [Creeping sow-thistle, Field sow-thistle, Perennial sow-thistle, *Sonchus uliginosus* Bieb], virtually identical to Perennial sow-thistle in seedling and juvenile stages, being distinguishable only after the flower heads (see page 153) begin to form and open. In Smooth perennial sow-thistle the stems and involucral bracts around the flower heads are smooth, completely lacking the dark glandular hair characteristic of Perennial sow-thistle. Smooth perennial sow-thistle occupies similar habitats to its sister variety but, although it occurs throughout Ontario, it is common only in extreme southwestern Ontario and in the northern and northwestern parts of the province.

**Spiny annual sow-thistle,** *Sonchus asper* (L.) Hill, (Figure 176) [laiteron rude, Prickly annual sow-thistle] Annual, reproducing only by seed. Resembling Perennial sow-thistle in general appearance but distinguished from it by its annual root (tapering downwards from ground surface and not connected to a strong horizontal root with other buds), lower and middle stem leaves (B) rather firm, clasping the stem with prominent rounded lobes (a); all margins with small, moderately spiny teeth; upper stems (b) and involucral bracts (c) of the flower heads (see page 153) smooth or sparsely glandular-hairy and the flower heads smaller. Before opening, the flower heads are short and cylindrical (d) but become top-shaped (e) with a broad base and a narrow tip after the yellow ligulate (strap-shaped) florets shrivel and fall; head about 2 cm (⅘ in.) across when fully open (f), seeds (g) brown, 3 mm (⅛ in.) long, somewhat flat with several lengthwise ribs on each surface but without cross-wrinkles, each with a fluffy white pappus (h); whole plant with sticky white juice. Flowers from June to September.

Spiny annual sow-thistle occurs throughout Ontario in waste places, along fence lines, roadsides, around buildings and occasionally in gardens. It is distinguished by the rounded, clasping basal lobes (a) on its rather firm leaves, the leaves lobed and generally tapering towards the tip; its tapering annual taproot; small flower heads; and seeds with lengthwise ribs but not cross-wrinkled.

**Annual sow-thistle,** *Sonchus oleraceus* L., (Figure 177) [laiteron potager, Common annual sow-thistle] Very similar to Spiny annual sow-thistle in general appearance but easily distinguished by having leaves which are deeply lobed with the terminal lobe being short, broad and rounded or triangular (a); the part of the leaf closer to the stem very narrow (b); the base of the leaf clasping the stem with 2 angular or pointed lobes (c); all margins with small teeth and soft weak spines; and seeds ridged lengthwise but each ridge with numerous small cross-wrinkles. It occurs in habitats similar to those of Spiny annual sow-thistle.

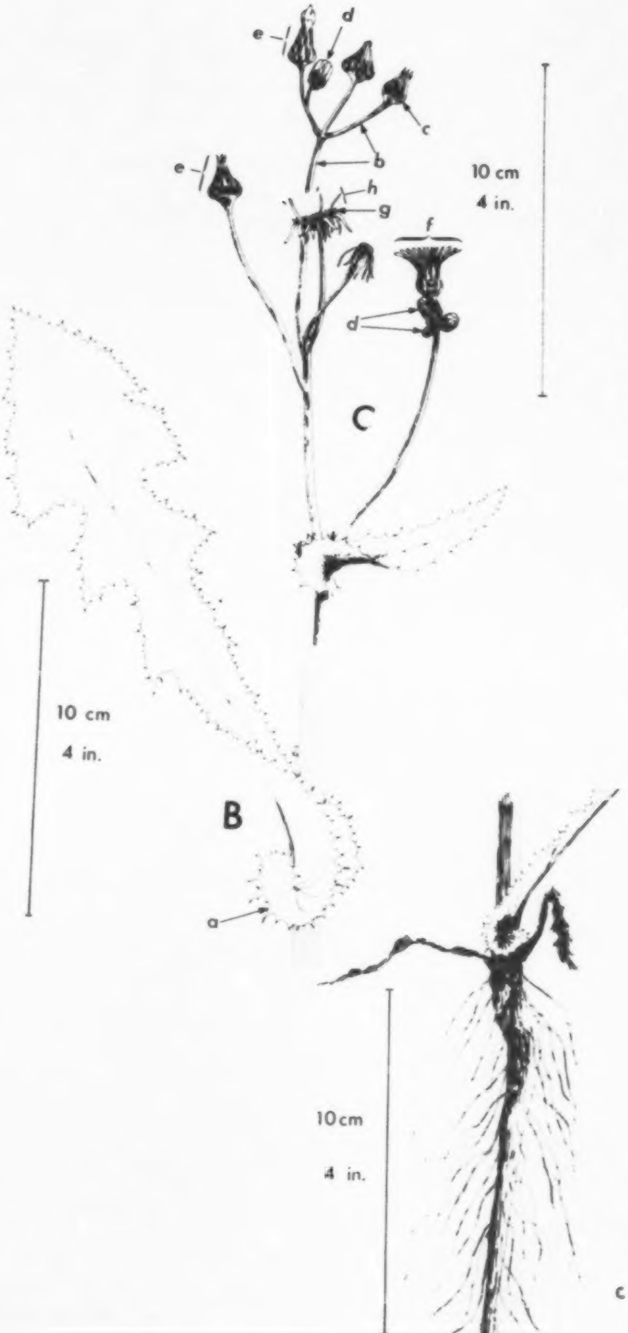


Figure 176. **Spiny annual sow-thistle** A. Base of plant. B. Leaf from lower or mid-stem. C. Top of flowering stem.

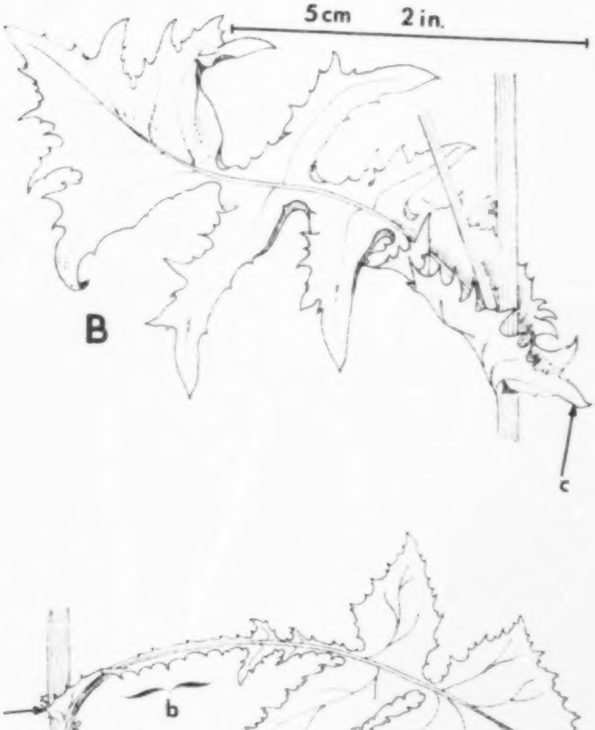


Figure 177. **Annual sow-thistle** A. Lower stem leaf. B. Upper leaf.

**Prickly lettuce**, *Lactuca scariola* L., (Figure 178) [laitue scariole, Compass plant, Wild lettuce, *Lactuca serriola* L.] Winter annual, biennial, or sometimes annual, reproducing only by seed. Stems erect, 30 – 150 cm (1 – 5 ft) high, whitish-green, usually smooth with a few prickles on the lower part, rather finely branched at the top; leaves variable in size and shape, usually deeply lobed or nearly divided with backward-curving lobes (A, B) but sometimes with irregularly shaped lobes (C) or without lobes (D); the outer (convex) margin (a) of each lobe usually weakly spiny-toothed, the inner (concave) (b) margin usually without teeth or with much smaller teeth; leaves clasping the stem with basal lobes (c); underside of the midrib nearly always with a single row of stiff, sharp prickles (d) (hence "prickly" in the common names), these usually absent from the upper leaves (e) among the inflorescence and occasionally absent from the lower leaves of second growth after mowing; leaves alternate (1 per node), usually twisted near the stem so the leaf blade is oriented with the margins pointing vertically and the flat surfaces facing horizontally, leaf tips often (but not always) pointing north and south; flower heads (see page 153) small and very numerous on fine stalks in much-branched inflorescences; each head with 5 to 12 yellow ray florets, the yellow color often fading to bluish on drying; disk florets absent; seeds narrowly oval with a long beak tipped with a tuft of white hair (pappus); whole plant with sticky white juice. Flowers from June to late autumn.

Prickly lettuce occurs throughout Ontario in waste places, pastures, roadsides, cultivated fields, and occasionally in gardens. It is distinguished from most other plants having milky juice and lobed or prickly-margined leaves by the row of strong spines (d) along the underside of the midribs of the stem leaves.

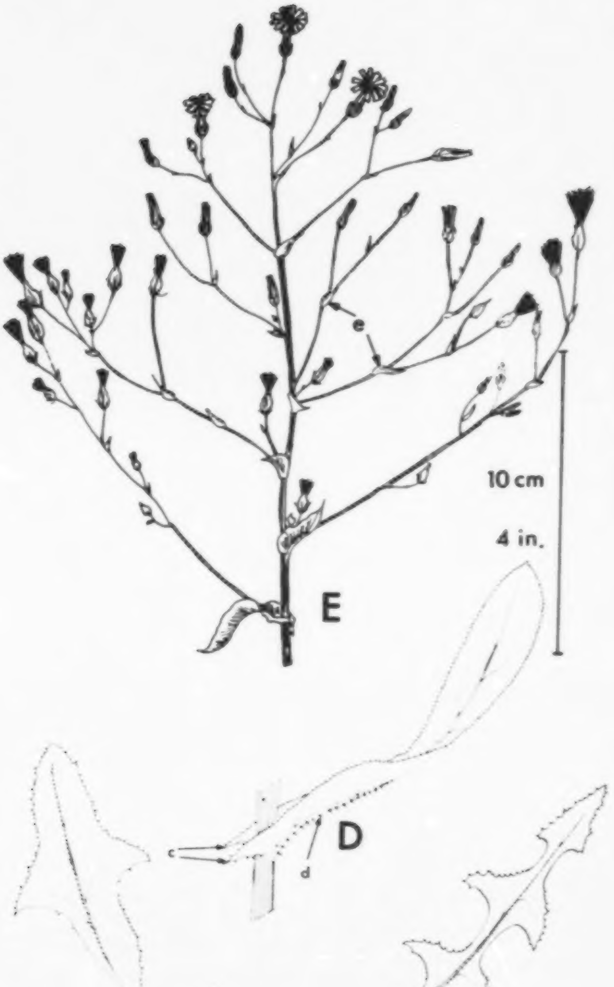


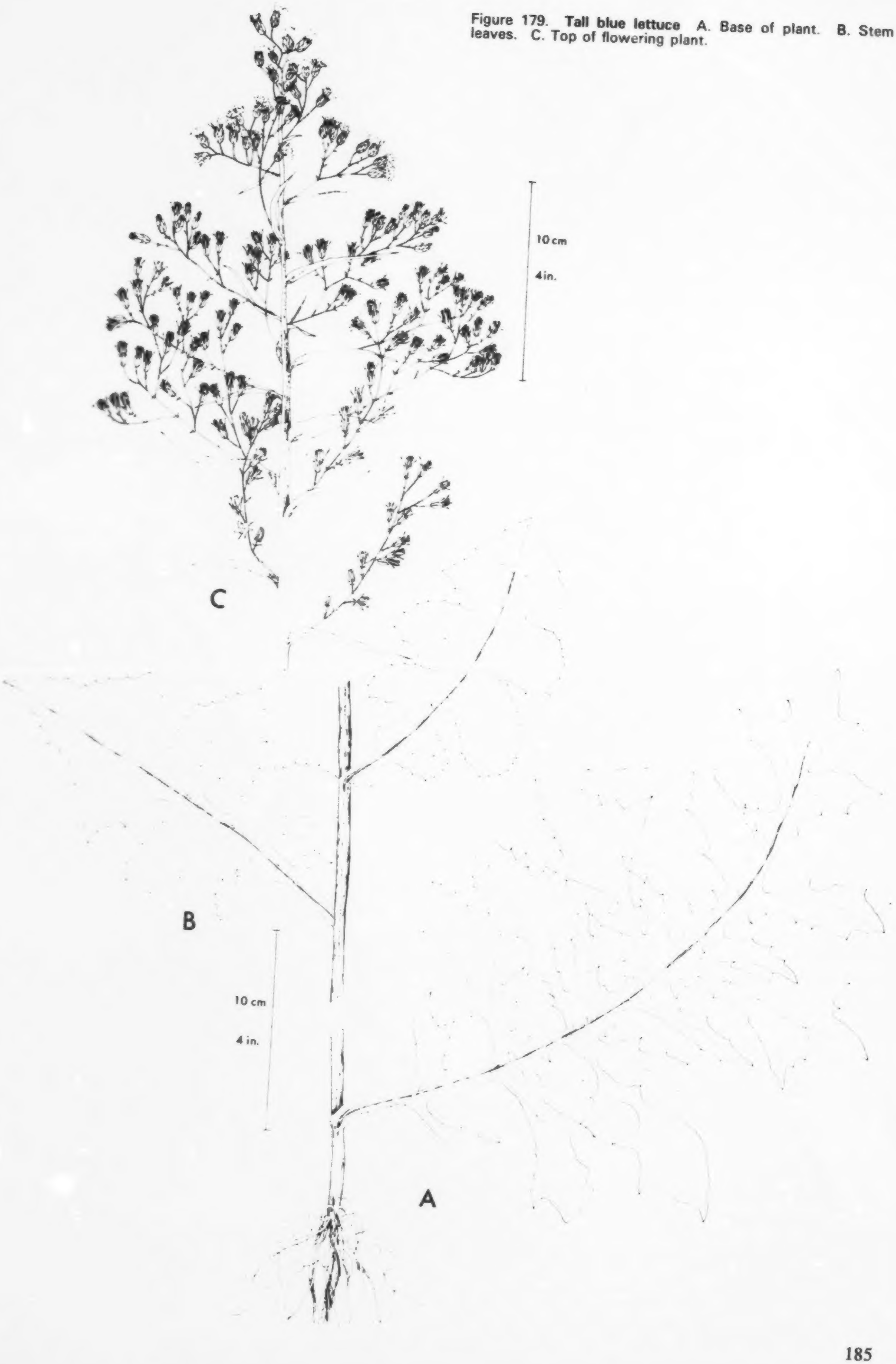
Figure 178. **Prickly lettuce** A–D. Variations in lobing of leaves on different plants. E. Top of flowering branch.

**Tall blue lettuce**, *Lactuca biennis* (Moench) Fern., (Figure 179) [laitue bisannuelle, Biennial lettuce, Tall lettuce] Biennial or annual, reproducing only by seed; similar to Prickly lettuce but usually taller (60 – 200 cm, 24 – 78 in. high), stouter, with a coarser inflorescence and more irregularly lobed leaves; the leaves without a row of prickles on the underside of the midrib but either smooth or softly hairy along the midrib and the main veins; flower heads (see page 153) somewhat larger than in Prickly lettuce, with up to 17 ligulate (strap-shaped) florets which range from bluish to white or occasionally yellow; seed with a very short beak at the tip and ending in a tuft of light brown hair (pappus); whole plant with sticky white juice. Flowers from July to September.

Tall blue lettuce occurs in scattered localities in southern Ontario in open woods, meadows, old pastures and roadsides.

**Canada lettuce**, *Lactuca canadensis* L., (not illustrated), [laitue du Canada, Tall lettuce], biennial or annual, reproducing only by seed; resembles Tall blue lettuce but is distinguished by its usually greater height (up to 250 cm, 8½ ft), the leaves usually slender with slender lobes and the flower heads always with yellow florets. It also occurs in open woods and meadows in southern Ontario.

Figure 179. **Tall blue lettuce** A. Base of plant. B. Stem leaves. C. Top of flowering plant.


10 cm
4 in.
C
B
10 cm
4 in.
A

**Chicory**, *Cichorium intybus* L., (Figure 180) [chicorée sauvage, Blue daisy, Blue sailors, Coffee-weed, Common chicory, Wild succory] Biennial or usually perennial, reproducing only by seed. Stems erect, 30 – 150 cm (1 – 5 ft) high, usually with stiff spreading branches, hollow, rough-hairy especially on the lower part; first-year plants without a stem but forming a thick, vertical taproot (a) and rosette of leaves; leaves of the basal rosette large, coarse, resembling Dandelion leaves but rough-hairy; stem leaves similar but smaller, alternate (1 per node), and bases of upper leaves clasping the stem; flower heads (see page 153) bright blue and very showy, stalkless or on short stalks in clusters along the branches, numerous; each head 3 – 4 cm (1⅕ – 1⅗ in.) across; all florets ligulate (strap-shaped) (b), blue, occasionally pinkish or whitish; seeds short, angled, top-shaped but lacking a tuft of hair at the tip; sticky white juice usually present in stems and leaves. Flowers from July to late autumn.

Chicory occurs throughout Ontario in waste places, fence lines, roadsides and occasionally in gardens. It is distinguished in rosette and nonflowering stages by its coarse, rough-hairy leaves superficially resembling Dandelion leaves, and when in flower, by its large, showy, blue flowers in stalkless clusters along the branches.

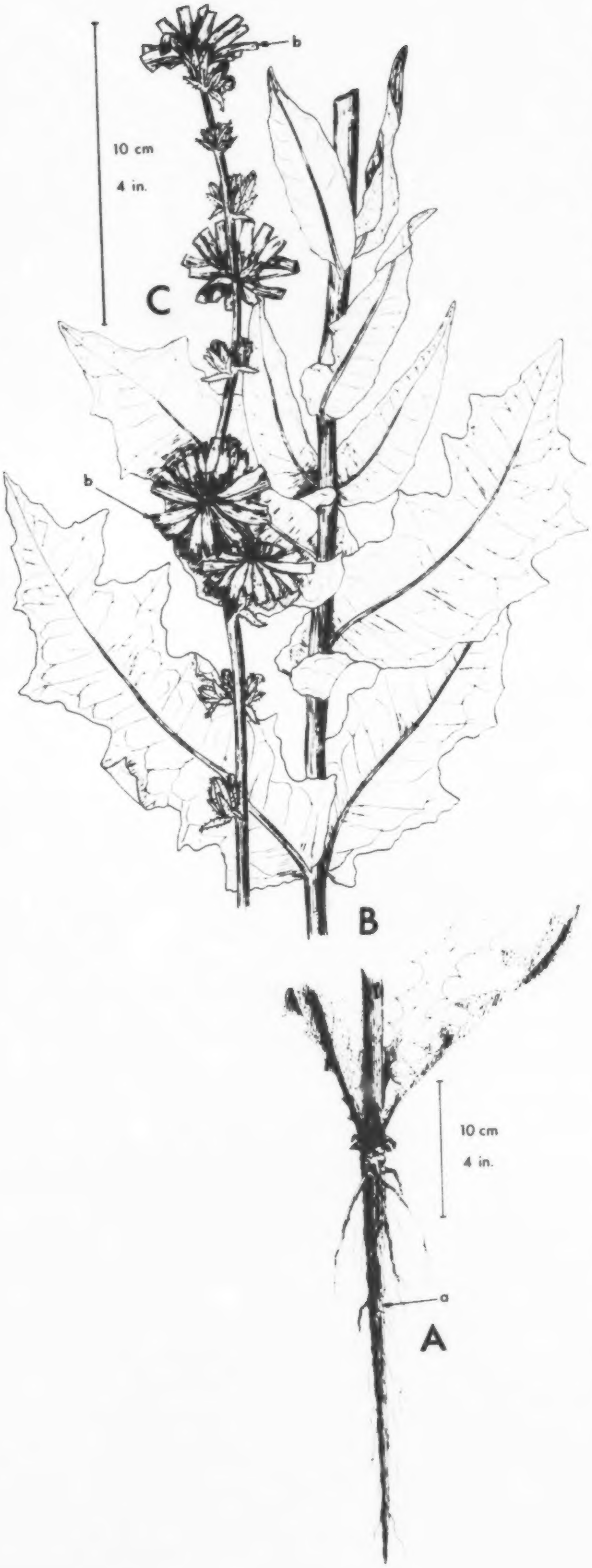


Figure 180. **Chicory** A. Base of second-year plant. B. Stem. C. Flowering branch.

**Dandelion**, *Taraxacum officinale* Weber, (Figure 181) [pissenlit] Perennial, reproducing only by seed. Leaves in a basal rosette on a thick, deeply penetrating taproot (A), elongated, deeply and irregularly lobed along each side or sometimes just shallowly toothed, the amount and shape of lobing or toothing being extremely variable from one plant to another (B – F); flower heads (see page 153) showy, bright yellow, borne singly on long, smooth, leafless, unbranched, hollow stalks which arise from among the rosette leaves; all florets ligulate (strap-shaped); seeds long, slender with a slender beak tipped with a tuft of white hair (pappus or "parachute"); whole plant with sticky white juice. Flowers from early spring to late autumn.

Dandelion occurs throughout Ontario in virtually every kind of habitat, from openings in deep woods to cultivated fields, from rocky hillsides to fertile gardens and lawns. It is distinguished from other plants with milky juice and lobed or divided leaves in rosette stage by the soft texture and irregular lobing of leaves, the absence of prickles on margins or midribs, the smooth or softly hairy leaf surfaces, and a deeply penetrating taproot. Flowering plants are distinguished by their large yellow flower heads borne singly on long, unbranched, leafless, hollow stalks which arise from among the rosette leaves.

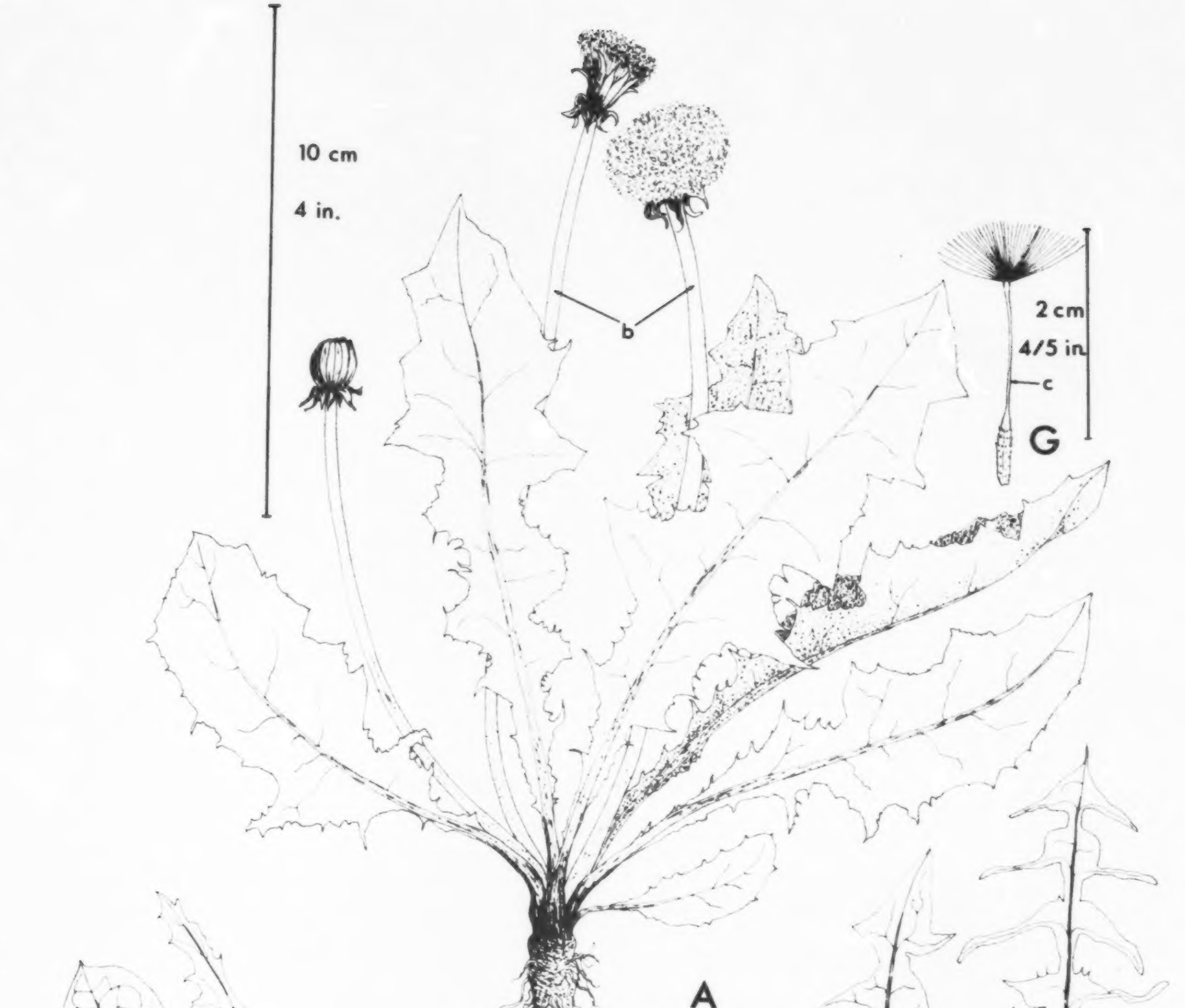

10 cm
4 in.
b
2 cm
4/5 in.
c
G
A
a
10 cm
4 in.
10cm
4 in.
B
C
D
E
F

Figure 181. **Dandelion** A. Plant. B–F. Variations in shape and lobing of leaves on different plants. G. 1 "seed."

**Fall hawkbit**, *Leontodon autumnalis* L., (Figure 182) [liondent d'automne, Fall dandelion] Perennial, reproducing only by seed. Similar in general appearance to Dandelion in having basal rosettes of irregularly lobed leaves and bright yellow flower heads (see page 153); but distinguished by having a predominantly fibrous root system (a) with a very short taproot (b) (usually only 1 – 2.5 cm, ⅖ – 1 in. long); the lobes of the leaves usually being slender, distinctly spaced, and with rounded rather than sharp tips or points; flower heads (see page 153) usually on branched stalks with 2 or more heads per stalk; the stalk not smooth but with many, scattered, small, scale leaves (c); seeds slender but without a beak and tipped with a tuft of light brownish, feathery hair (pappus). Flowers from June to October.

Fall hawkbit occurs in a few scattered localities in southern Ontario in lawns, roadsides and waste places. Its most important distinguishing features are the 2 or more flower heads on slender, branched, scaly-leaved (c) stems, the predominantly fibrous root system (a) (not a long taproot), and the slender seeds with a thin beak but tipped with light brownish, feathery hair.

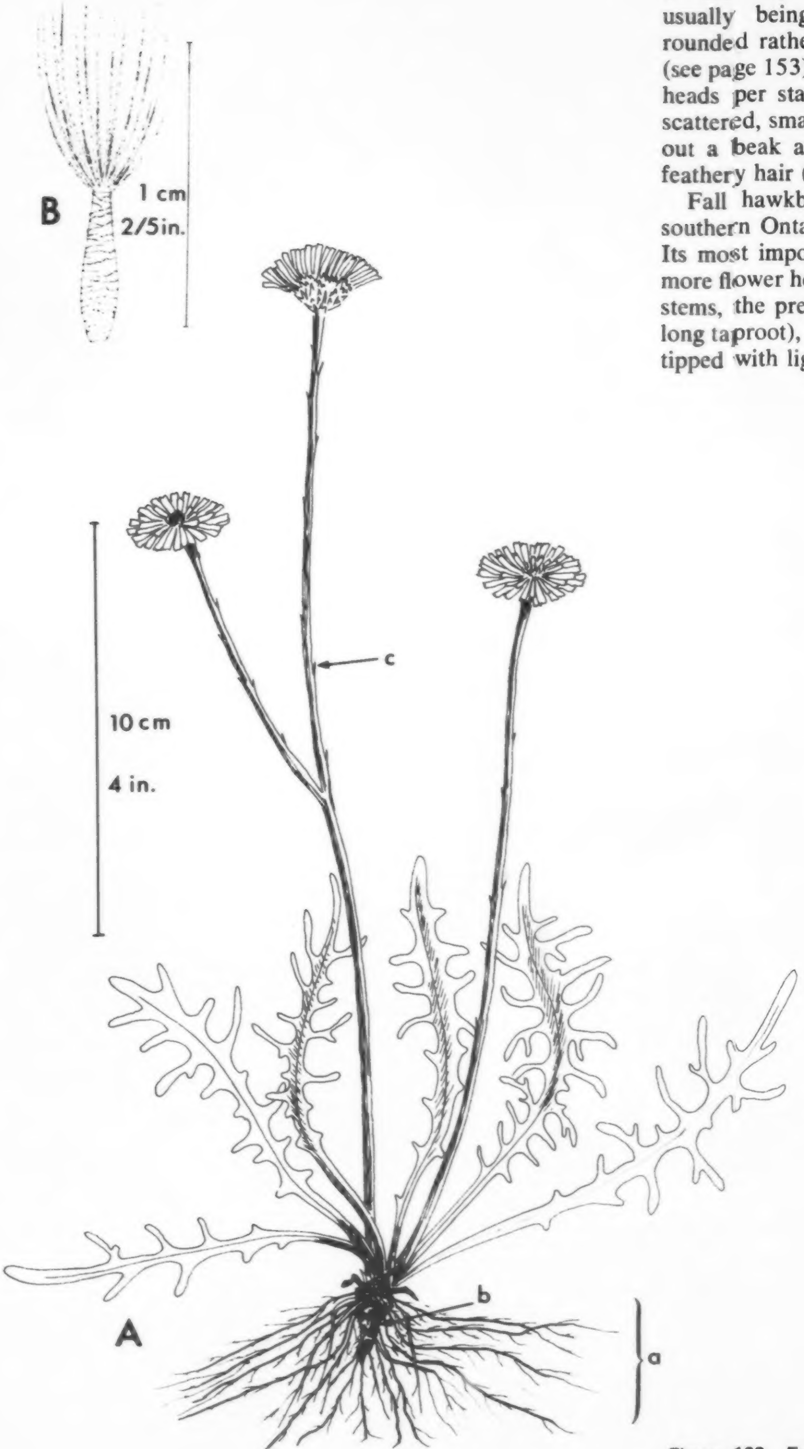


Figure 182. **Fall hawkbit** A. Plant. B. 1 "seed."

**Goat's-beard,** *Tragopogon dubius* Scop., (Figure 183) [salsifis majeur, Western goat's-beard, Yellow goat's-beard, *Tragopogan major* Jacq.] Biennial, occasionally annual or short-lived perennial, reproducing only by seed. Stems 30 – 100 cm (12 – 40 in.) high, smooth, round, somewhat fleshy, from a deeply penetrating, thick taproot; leaves alternate (1 per node), long, linear, very grasslike but smooth and fleshy rather than firm or harsh; younger leaves somewhat downy hairy; dry, brown, shriveled leaves (a) from the previous year's rosette frequently persisting around the base of leafy-stemmed and flowering plants; flower heads (see page 153) large, showy, pale lemon-yellow, borne singly at ends of stems and branches (resembling Meadow goat's-beard, Plate 00); stalk (b) very thick at the base (c) of the flower head, hollow, tapering gradually downwards to normal stem thickness (d); involucral bracts (e) usually 10 or more, green, 2.5 – 4 cm (1 – 1⅗ in.) long at flowering, elongating to about 7.5 cm (2½ in.) or longer as the seeds mature; all florets (f) ligulate (strap-shaped), the outer ones opening first and the unopened inner florets somewhat resembling disk florets; flower heads opening and pointing towards the sun each morning, twisting slightly and following the sun until midday, and closing during the afternoon; mature seed head a white, fluffy sphere (D) 7 – 10 cm (3 – 4 in.) diameter; each seed including its slender beak about 3 cm (1¼ in.) long and tipped with a white, umbrellalike circle of feathery bristles (pappus) (f); whole plant, except the seed, with a white milky juice. Flowers in June and July and occasionally continues until September.

Goat's-beard occurs throughout Ontario in pastures, meadows, roadsides and occasionally gardens. Flowering plants are distinguished by their lemon-yellow flower heads surrounded by usually 10 or more, slender, tapering, green involucral bracts (e) which are longer than the florets (f), a thick, hollow, gradually tapering stalk (b) below the flower head, and the large, spherical seed head. Nonflowering plants are distinguished by their erect, fleshy, smooth-textured, grasslike leaves with milky juice, the leaves usually not having crisped or wrinkled margins.

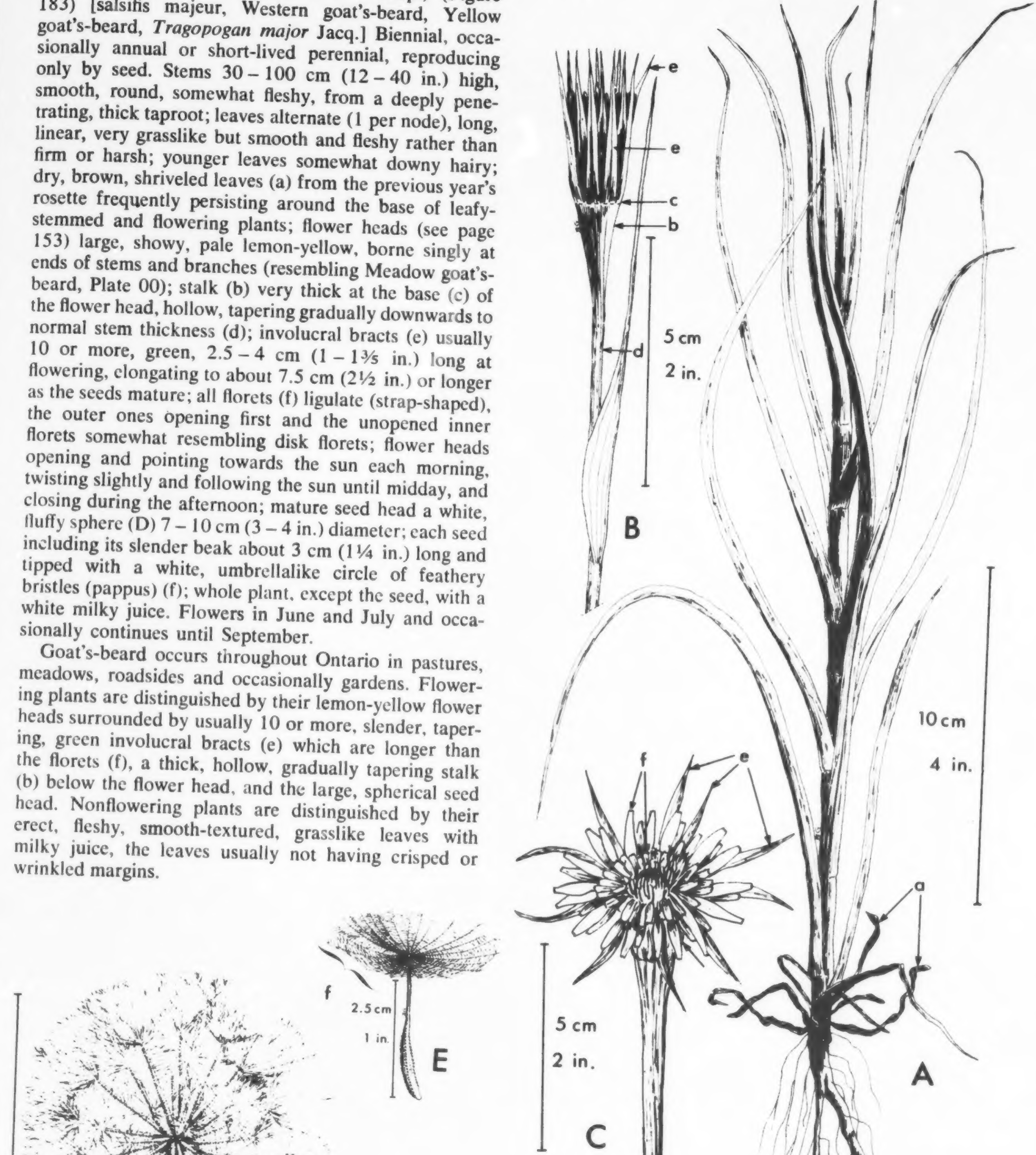


Figure 183. **Goat's-beard** A. Plant before flowering. B. Flower head about to open. C. Flower head in full bloom. D. Mature "seed" head. E. 1 "seed."

**Meadow goat's-beard**, *Tragopogon pratensis* L., (Figure 184A, Plate 44) [salsifis des prés, Johnny-go-to-bed-at-noon, Meadow salsify, Yellow goat's-beard] Very similar to Goat's-beard in general appearance and growth habit but differing from it by having stem leaves which taper more quickly into long, slender, curled tips (Plate 44), these often with crisped or wrinkled margins; brighter yellow (canary yellow) florets (a) surrounded by usually only 8 green involucral bracts (b) which are about as long as or shorter than the florets; and the stalk (c) immediately below the flower head is abruptly narrowed to normal stem thickness, and is not hollow. It occurs throughout Ontario in the same habitats as Goat's-beard.

**Common salsify**, *Tragopogon porrifolius* L., (Figure 184B) [salsifis cultive, Garden salsify, Salsify, Vegetable-oyster], cultivated as a garden vegetable and occasionally escapes to roadsides and waste places; very similar to Goat's-beard in habit and appearance but is distinguished by having purple florets rather than yellow, and a circle of brownish feathery bristles (pappus) rather than white at the tip of the seed.

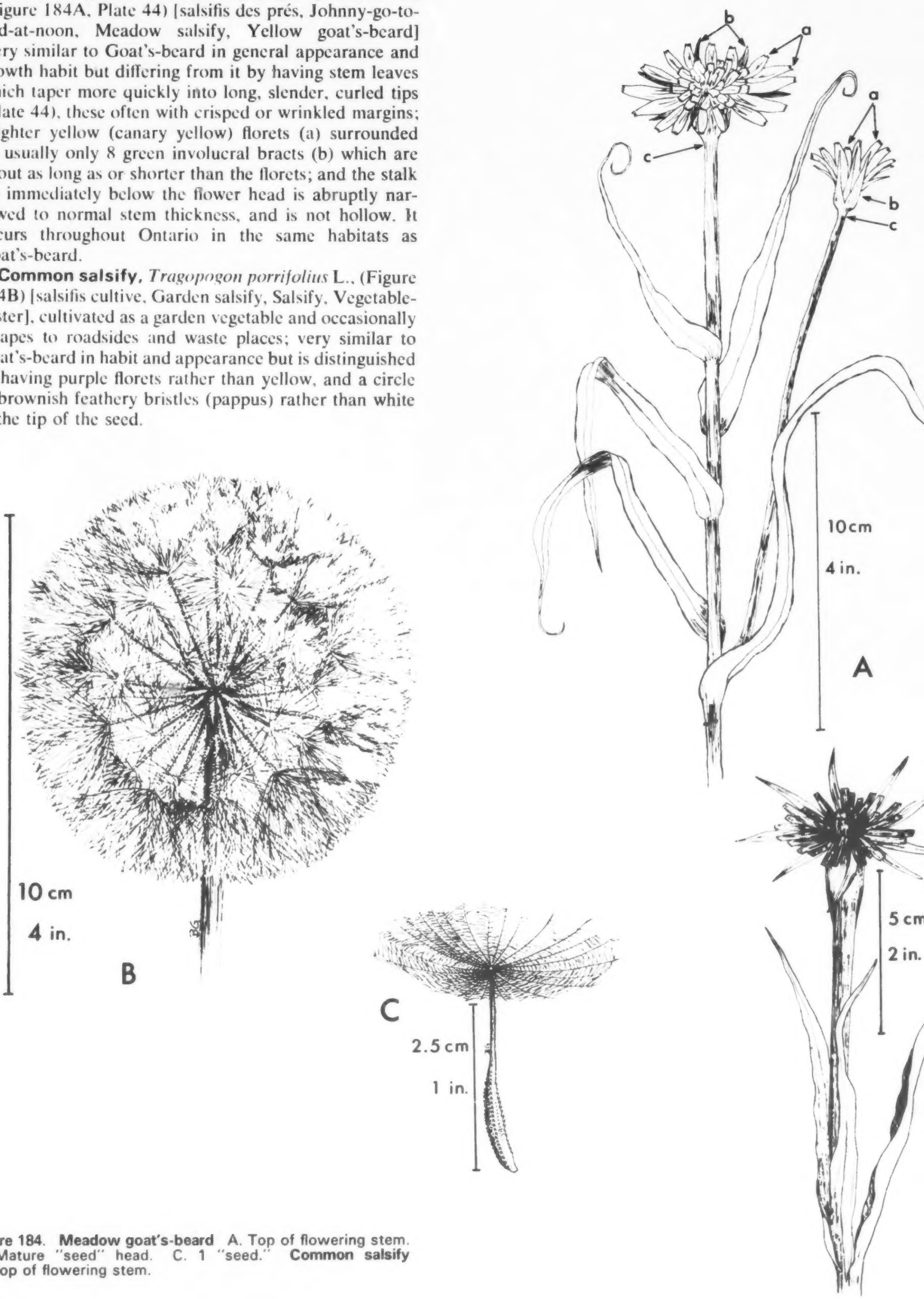


Figure 184. **Meadow goat's-beard** A. Top of flowering stem. B. Mature "seed" head. C. 1 "seed." **Common salsify** D. Top of flowering stem.

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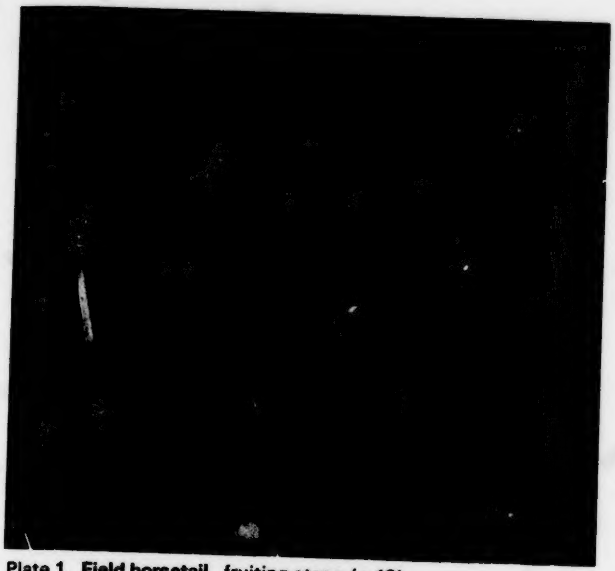

Plate 1. **Field horsetail** fruiting stage (p 13)

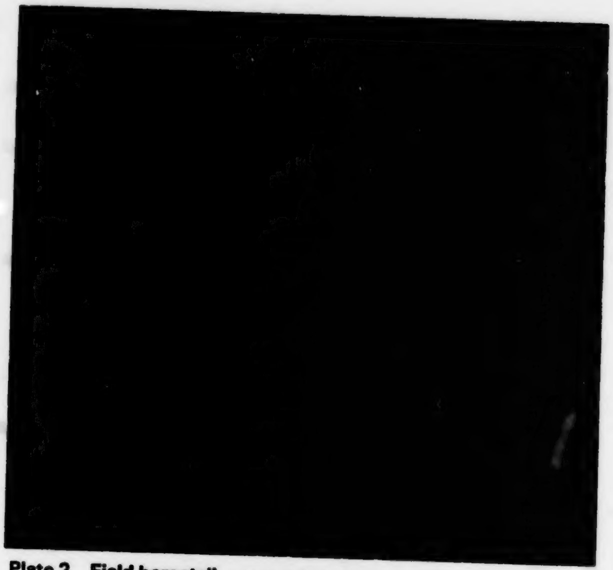

Plate 2. **Field horsetail** vegetative stage (p 13)

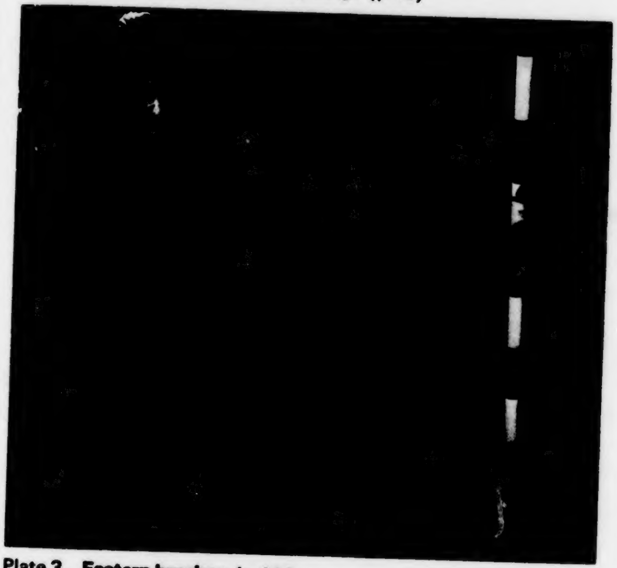

Plate 3. **Eastern bracken** (p 14 )

Plate 4. **Wild garlic** (left to right) base of mature plant, hard-shelled bulbs, young plants, germinated bulblets, aerial bulblets (top, right) kernels of wheat (p 35)

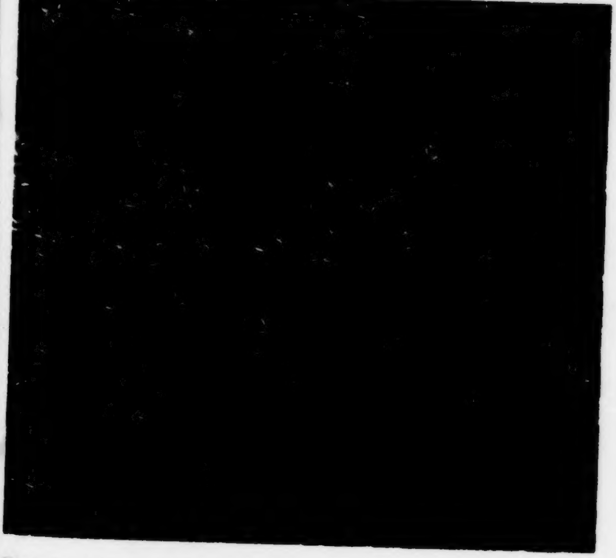

Plate 5. **Mossy stonecrop** (p 84)

Plate 6. **Black medick** (p 90)

Plate 7. Foxtail barley (p 24)

Plate 8. Sheep sorrel (p 36)

Plate 9. Curled dock (p 37)

Plate 10. Japanese knotweed (p 43)

Plate 11. Oak-leaved goosefoot (p 46)

Plate 12. Mouse-eared chickweed (p 59)

Plate 13. Rough cinquefoil (p 85)

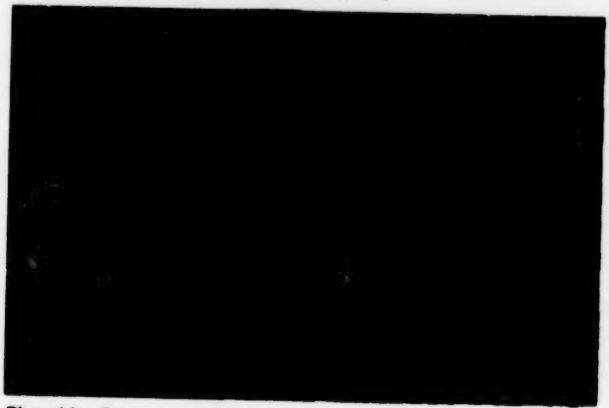

Plate 14. Common mallow (p 103)

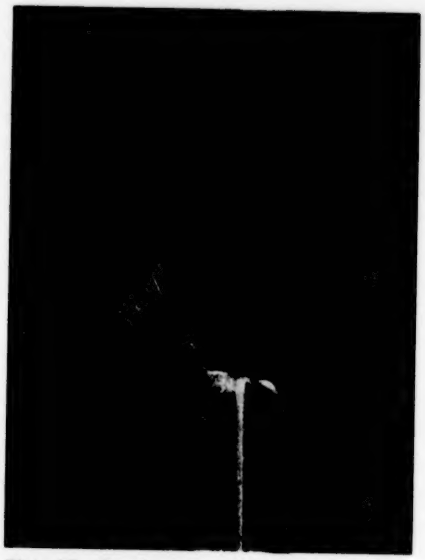
Plate 15. Quack grass leaf base (pp 15, 23)

Plate 16. Lamb's-quarters (p 44)

Plate 17. Redroot pigweed (p 50)

Plate 18. Creeping buttercup (left) (p 67), Tall buttercup (right) (p 66)

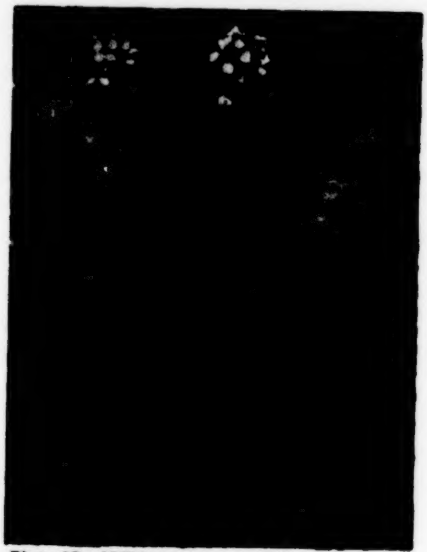
Plate 19. Wild mustard (p 70)

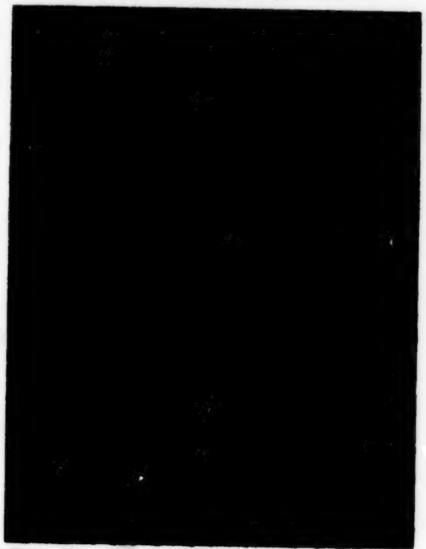
Plate 20. Yellow rocket (p 73)

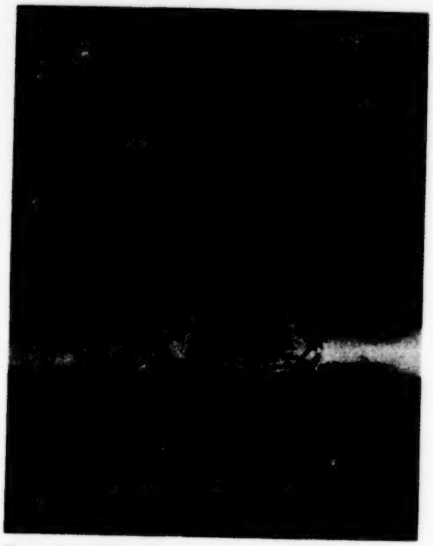

Plate 21. **Flixweed** (p 78)

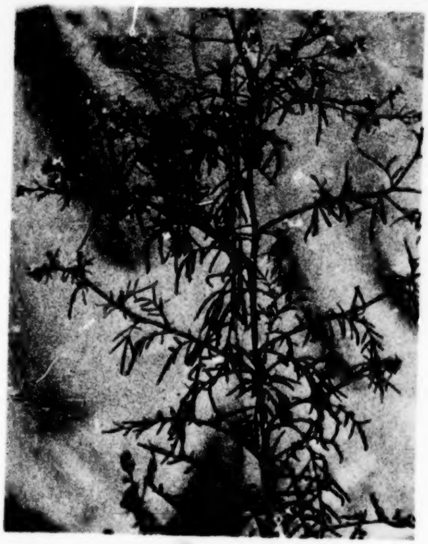

Plate 22. **Tumble mustard** (p 76)

Plate 23. **Wormseed mustard** (p 73)

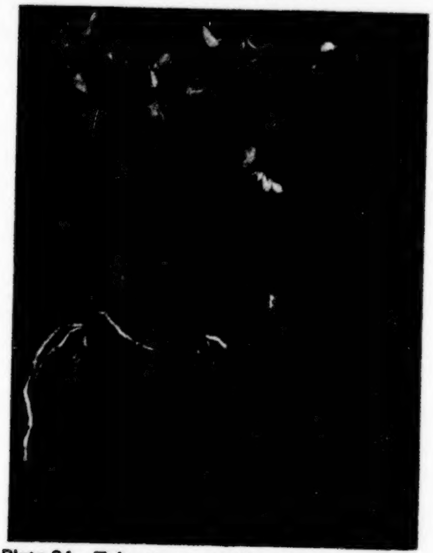

Plate 24. **Tuberous vetchling** flowers, seedpods, tubers, leafy stem (p 93)

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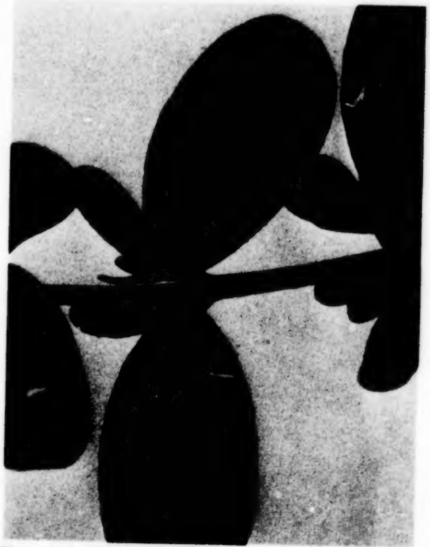

Plate 26. **St. John's-wort** leaves with transparent dots (p 106)

Plate 27. **Wild carrot** (p 110)

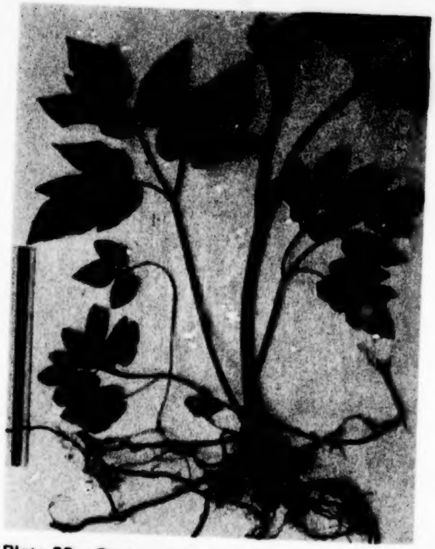

Plate 28. **Goutweed** (p 111)

Plate 29. **Common milkweed** (p 119)

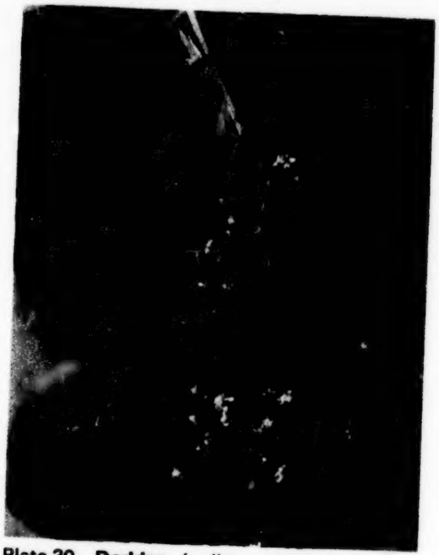

Plate 30. **Dodder** (yellow-orange) on carrot (green) (p 122)

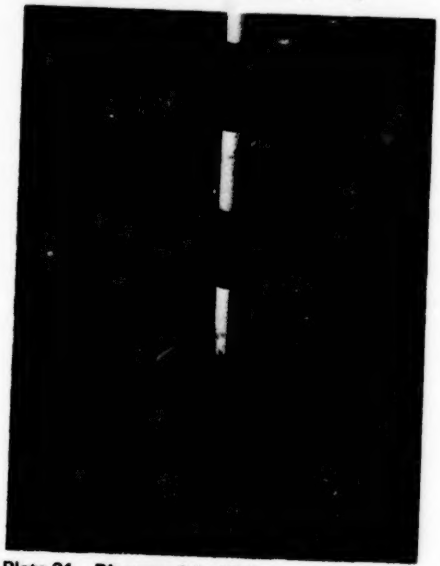

Plate 31. **Blueweed** (p 124)

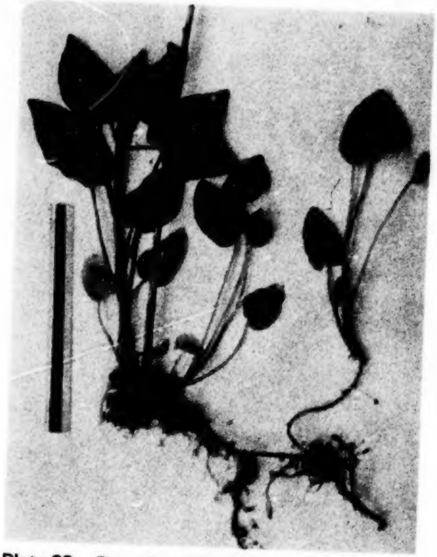

Plate 32. **Creeping bellflower** (p 152)

Plate 33. **Poison-ivy** (p 99)

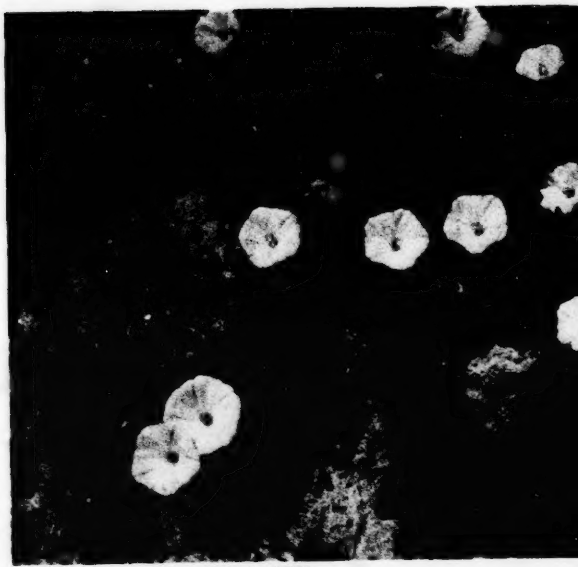

Plate 34. **Field bindweed** (p 122)

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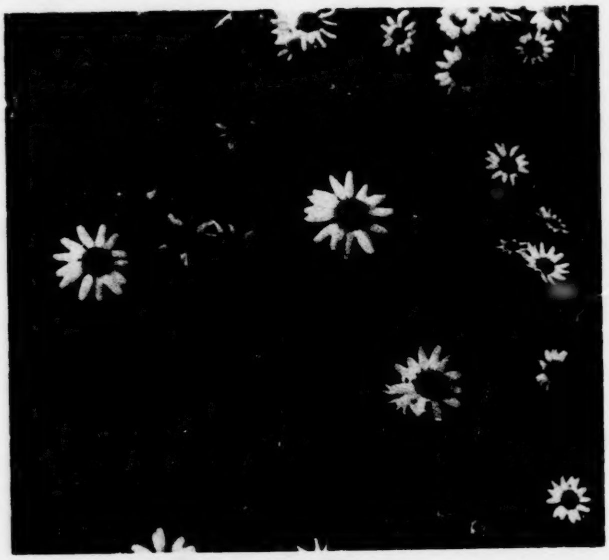

Plate 37. **Stinking mayweed** (p. 160)

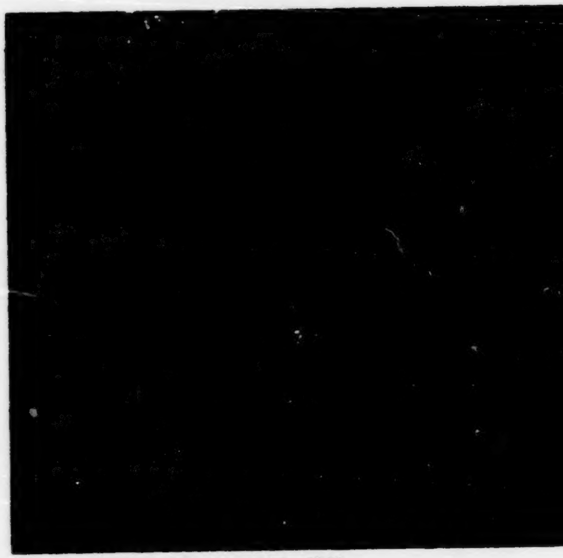

Plate 38. **Orange hawkweed** (p 181)

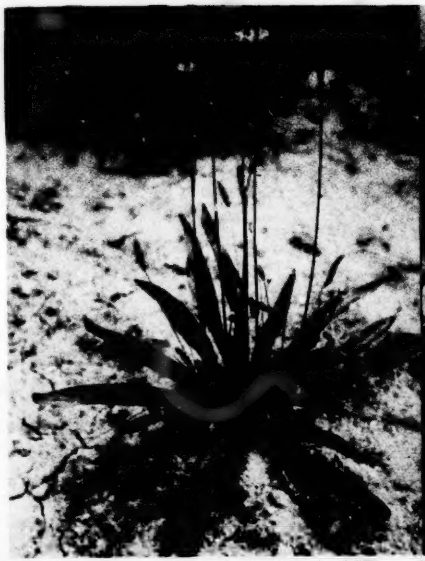

Plate 39. **Narrow-leaved plantain** (p 147)

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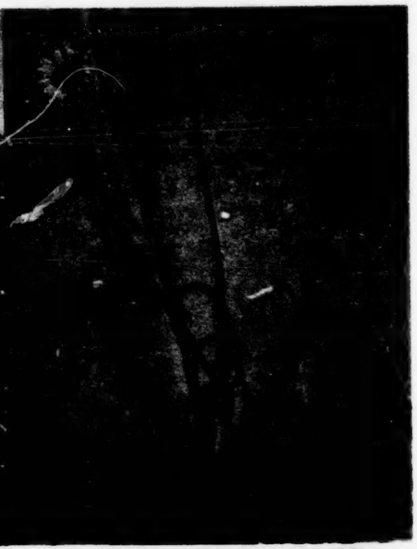

Plate 44. **Meadow goat's-beard** (p 190)

Plate 45. **Jerusalem artichoke** (with tubers) (p 154)

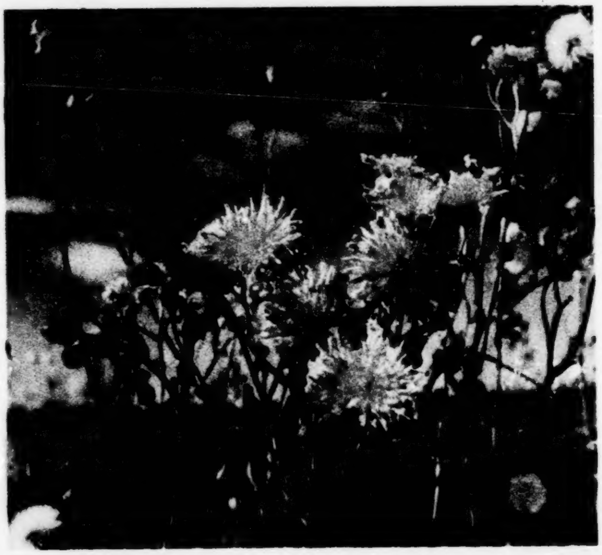

Plate 46. **Smooth perennial sow-thistle** (p 182)

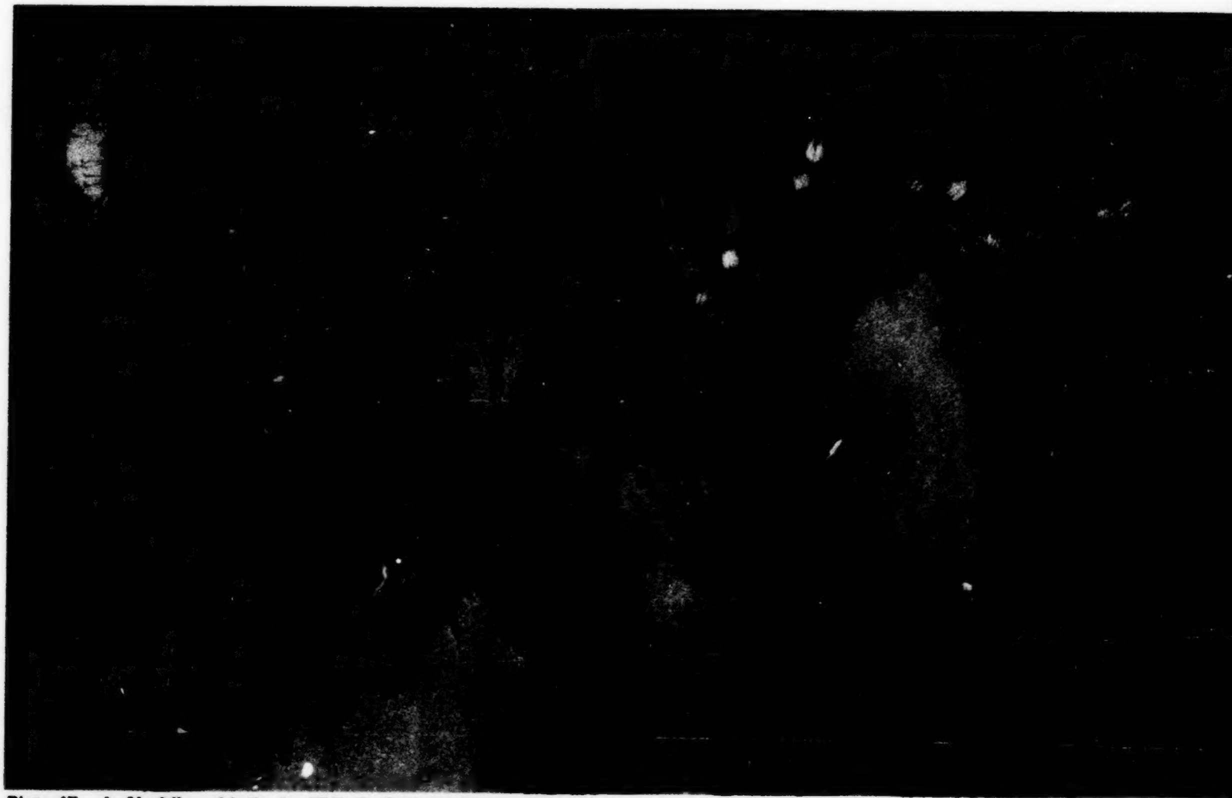

Plate 47. A. **Nodding thistle** (p 174) B. **Bull thistle** (p 177) C. **Canada thistle** (purple-flowered male plant) (p 176) D. **Canada thistle** (purple-flowered female plant) (p 176) E. **Canada thistle** (white-flowered male plant) (p 176)

Plate 48. **Russian thistle** (p 48)

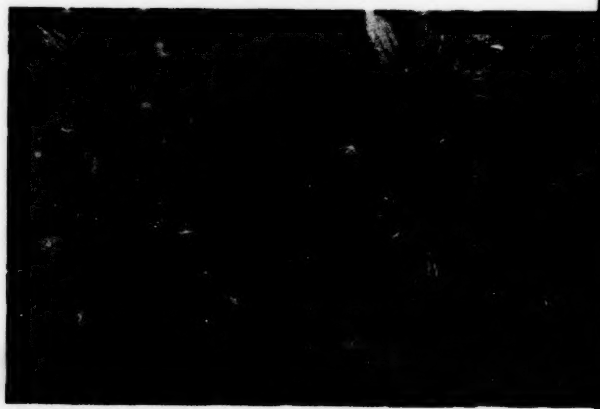

Plate 49. **European buckthorn** (p 101)

Plate 50. **Common barberry** in flower (p 68)

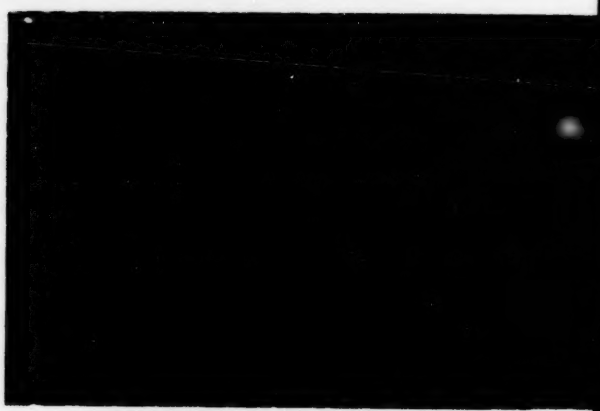

Plate 51. **Common barberry** in fruit (p 68)